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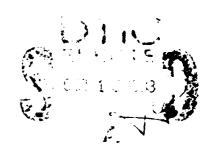
# **USAF ADVANCED TERRESTRIAL ENERGY STUDY**

**VOLUME III: PARAMETER SURVEY** 

Institute of Gas Technology 3424 S. State Street Chicago, Illinois 60616

**APRIL 1983** 

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AERO PROPULSION LABORATORY

AIR FORCE WRIGHT AERONAUTICAL LABORATORIES

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This technical report has been reviewed and is approved for publication.

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This report presents the results of the USAF Advanced Terrestrial Energy Study. The objective of that study was to develop a data base of key parameters of selected energy conversion and energy storage technologies. The data base includes present and expected (through 2000) performance goals of the systems. The data base was established through an extensive literature search, surveys of manufacturers and researchers, and statistical and qualitative analyses of the available input data. The results of the study are reported in four documents

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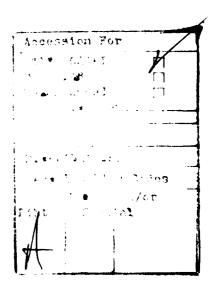
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#### INTRODUCTION

This volume of the USAF Advanced Terrestrial Energy Study contains the estimates of specific parameter values for each technology for 1980, 1985, 1990, and 2000 at the following descrete power output levels: 1.5, 5.0, 20.0, 60.0, 100.0, 250.0, 500.0, 750.0, 1000.0, and 5000.0 kW. This parameter survey includes three major sections: one for the energy conversion technologies and two for the energy storage technologies. The output levels for the storage technologies are in terms of energy (kWh) rather than power,

The parameter values listed in this volume were derived from analyses of raw data and therefore represent the expected values of the parameters at those output levels and time periods. The actual value may vary (that is, the performance of a specific design for a specific application). Details on the assumptions made in determining these parameter values are reported in Volume I. The analyses leading to the values listed in this volume are presented in Volume IV along with the expected variance or ranges of parameter values.

The following energy conversion technologies were characterized in this data base:

- Gas Turbines
  - Open cycle, nonrecuperative (nonregenerative)
  - Closed cycle
  - Open cycle, recuperative (regenerative)
- Diesels
  - Turbocompounded
  - Turbocharged
  - Adiabatic
- Stirlings
  - Free piston
  - Kinematic
- Organic Rankine Cycles
- Fuel Cells

- Phosphoric acid
- Solid polymer electrolyte (SPE)
- Molten carbonate
- Photovoltaics
  - Flat plate
  - Actively cooled
  - Photochemical
- Wind Turbines
  - Vertical axis
  - Horizontal axis.

The following energy storage technologies were characterized in this data base:

- Batteries
  - $z_n/cl_2$
  - Zn/Br<sub>2</sub>
  - Ni/Fe
  - Li-Al/FeS<sub>2</sub>
  - Na/S
  - Advanced sealed lead/acids
  - Redox Cr-Fe
- Thermal Energy Storage Devices
  - CaCl<sub>2</sub> · 6H<sub>2</sub>O, calcium chloride hexahydrate
  - Na<sub>2</sub>SO<sub>4</sub> · 1OH<sub>2</sub>O, sodium sulfate decahydrate (Glauber's salt)
  - Na<sub>2</sub>S<sub>2</sub>O<sub>3</sub> · 5H<sub>2</sub>O, sodium thiosulfate pentahydrate
  - Olivine ceramic brick
  - Magnesite ceramic brick
  - Form-stable polyethylene.

The complete set of parameters and their definitions follow.

• Type. This parameter value is either mobile, transportable, or fixed; it refers to the complete energy system, not just the component technology.

A system is mobile if it 1) is transportable by truck or aircraft and 2) can be assembled or dismantled within 8 hours with no prior site preparation. A system is transportable by truck if the system itself or the largest component of the system can be broken down and does not exceed the dimensions of 10-feet wide by 13-feet high by 60-feet long. For air transportability, the system or largest component of the system cannot exceed 16-feet wide by 9-feet high by 100-feet long, nor can it exceed a weight limit of 350 1b/ft<sup>2</sup> floor loading.

A system is transportable if it 1) is transportable by truck or aircraft subject to the same limitations as mobile and 2) can be set up or removed within 1 week with only minor site preparation.

A system that is neither mobile nor transportable is fixed.

- Fuel Capability. Fuel capability indicates the fuels that can provide the primary energy source for each system. Primary fuels for the purpose of this study include
  - JP-4
  - Diesel (DF-1 or DF-2)
  - Electricity
  - Natural gas
  - Solar
  - Wind
  - Thermal (heat)
  - Methanol

Systems that have multifuel capabilities are denoted "multi."

- System Acquisition Cost. The estimated total installed cost in 1980 dollars of the energy system excluding land procurement.
- Acquisition Cost (except BOP). The estimated off-the-shelf cost of the component technology excluding the balance-of-plant components for the complete system. The cost is in 1980 dollars.
- Annual Operating and Maintenance Cost. The estimated annual cost of operating the energy system. The cost is in 1980 dollars and includes all operating and maintenance expenses except for fuel costs.
- System Efficiency. A system's efficiency is the primary energy output

divided by the primary fuel energy input. It does not include the energy content of by-product energy recovery unless specifically noted.

Efficiency is measured in percent.

- Efficiency (except BOP). This is the efficiency of the component technology and is the direct energy output from the component technology (for example, shaft power for the engine) divided by the energy content of the fuel for the technology. This efficiency is based on the energy balance around the component technology and excludes all balance-of-plant components and by-product energy. Efficiency is measured in percent.
- Lifetime. This is the estimated number of years the energy system is expected to produce its designated output during continuous operation.

  Continuous operation is as previously defined under "General Requirements."
- Annual Fuel Consumption. This is the calculated annual energy content of designated fuel consumed by the energy system at its designated output during continuous operation. It is measured in Btu's unless otherwise specified.
- Annual Fuel Cost. This is the calculated annual cost of primary fuel. It is the product of the primary fuel price in 1980 dollars times the annual fuel consumption for the energy system. Fuel prices are discussed in the section of this report headed "Fuels and Fuel Prices." Selection of one fuel type for systems with multifuel capability is discussed in the section of this report headed "General Requirements."
- Annual Fuel Cost (5%). This is the calculated annual cost of primary fuel assuming a real price increase of 5% per year. It is measured in 1980 dollars.
- Annual Fuel Cost (10%). This is the calculated annual cost of primary fuel assuming a real price increase of 10% per year. It is measured in 1980 dollars.
- Life-Cycle Cost. Life-cycle cost is the calculated cost of acquiring, operating (including fuel use), and maintaining the energy system at continuous operation at its output level for a period of 20 years. For systems with lifetimes of less than 20 years, the cost of rebuilding or reacquiring a system to extend the life to 20 years is included. The life-cycle cost is measured in 1980 dollars per unit of energy output. The procedure for calculating life-cycle costs is discussed in the section of this report headed "Life-Cycle Costing Analysis."
- Life-Cycle Cost (5%). This is the life-cycle cost of the energy system as previously defined except that fuel costs are assumed to be based on a 5% per year real price increase. It is measured in 1980 dollars per unit of energy output.
- Life-Cycle Cost (10%). This is the life-cycle cost of the energy system as previously defined except that fuel costs are assumed to be based on a 10% per year real price increase. It is measured in 1980 dollars per unit of energy output.

- Start-up Time. The start-up time is the elapsed time in minutes for the system to achieve full output from a "ready to start" or "cold start" condition.
- Shutdown Time. The shutdown time is the elapsed time in minutes to bring a system from a full output condition to an off or standby mode.
- Volume (System). This is the volume in cubic feet of the envelope of the installed energy system.
- Volume (except BOP). This is the volume in cubic feet of the component technology excluding all balance-of-plant components.
- Area (System). This is the land or surface area in square feet required for the installed energy system.
- Area (except BOP). This is the land or surface area in square feet required for the energy technology excluding all balance-of-plant components.
- Weight. This is the total weight of the complete energy system measured in pounds.
- Weight (except BOP). This is the weight in pounds for the energy technology excluding all balance-of-plant components.
- Raw Materials. This is a qualitative parameter to indicate whether each system requires any materials that may not be readily available in sufficient quantity to allow the system to be produced in large quantities. This parameter is measured on an ordinal scale:
  - 1 definite raw materials limitations
  - 3 potential raw materials limitations
  - 5 no apparent raw materials limitation
- Reliability. This is a qualitative parameter that indicates the potential for unanticipated outages of the energy system. Reliability is evaluated in terms of moving parts, operating temperature, modularity (redundancy), stress levels, corrosion, etc. Reliability is measured on ordinal scale:
  - 1 high potential unreliability
  - 2 moderate potential unreliability
  - 3 average
  - 4 moderate reliability
  - 5 high reliabili y
- Environ. 1 ( straints. This is a qualitative parameter that indicates the potential for environmental insult from the energy system. This

parameter is evaluated in terms of thermal discharge; air pollution, including CO,  $NO_X$ ,  $SO_X$ , HC, particulates, and others; noise; odor; solid waste; and chemical waste. Environmental constraint is measured on an ordinal scale:

- 1 extreme potential environmental constraint
- 2 high potential environmental constraint
- 3 average potential environmental constraint
- 4 moderate potential environmental constraint
- 5 minimum potential environmental constraint
- Locational Constraints. This is a qualitative parameter to indicate the potential for locational constraints that could limit the applicability of the energy systems. This parameter is evaluated in terms of water requirements, personnel requirements, fuel availability, fuel storage, and others (solar, wind). Locational constraints are measured on an ordinal scale:
  - 1 extreme potential locational constraints
  - 2 high potential locational constraints
  - 3 average locational constraints
  - 4 moderate locational constraints
  - 5 minimum locational constraints
- Operational Constraints. This is a qualitative parameter that indicates the turn-down and load-following capabilities of the system relative to operating efficiency. This parameter is evaluated in terms of part-load capability, overload capability, and load-following capability. Operational constraints are measured on an ordinal scale:
  - 1 no turn-down capability
  - 2 turn-down capability with high efficiency penalty
  - 3 average turn-down capability
  - 4 moderate turn-down capability; moderate efficiency penalty
  - 5 excellent turn-down capability; minor efficiency penalty
- Thermal Energy Available. The thermal energy recoverable from any energy system is a function of the quality and quantity of thermal energy produced by the system. It would be beyond the scope of this study to estimate the thermal energy available from each technology at the 11 different output levels. Consequently, this parameter will be qualitative and measured on an ordinal scale:

- 1 no potential for heat recovery
- 2 minor potential for heat recovery, extreme use limitation
- 3 potential for heat recovery, moderate use limitation
- 4 moderate potential for heat recovery, minor use limitations
- 5 very high potential for usable heat recovery

#### CONVERSION DEVICE PARAMETERS

This section presents the parameter values for the gas turbines, diesel engines, Stirling engines, fuel cells, photovoltaics, and wind turbines. All systems were evaluated on the basis of continuous production of utility-quality ac power (operating 90% of each year at the required power output level).

The parameter "lifetime" is not included in the parameter survey for the conversion technologies because all of the systems are evaluated on a 20-year economic life.

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1985   NCA	_	_	2	<u> </u>	<b>Ş</b>	2	Z :	1.35E03	1.35203	1.76E03	9.00E02	₹ Z	1.28E03	2.07E05	3.03E05	2.07E05	3.17504	3.17504
1990   NCA   NCA   NCA   NCA   5.3082)   NCA   4.5082)   4.6082)   5.0862   NCA   NCA   C.2582   5.3882   NCA			<b>≨</b>	<u>Ş</u>	វ្	4.82E03	<u> </u>	<u>ح</u>	<u> </u>	4.40E03	NCA 7. SOFO3	S S	<u>5</u> 5	9.48505	1.38506	Ž,	7.41504	7.41504
1990   NCA	198	_	NC.	<u>Ş</u>	NC.	5.30203	YC.		4.50E03	4.40E03	5.00E03	Š	Ş	6.92E05	1.01506		6.67E04	6. 67EO4
1986   NCA   NCA   NCA   NCA   1.22504   NCA   1.20504   1.20504   1.20504   NCA   NCA   1.20504   NCA   NCA   NCA   NCA   1.20504   NCA   NCA   NCA   NCA   NCA   1.20504   NCA   NCA   NCA   NCA   1.20504   NCA   N	_		<u> </u>	<u> </u>	<b>Ş</b> Ş	2,32504	<u> </u>		4.50E03	4.40E03	3.00E03	<u>ح</u>	4.25E03	6.92E05	1.01E06	ŝ	6.67E04	6.67504
1990   NCA   NCA   NCA   NCA   2.55504   NCA   1.20004   1.22004   1.20004   1.20004   1.20004   1.20004   NCA   NCA   1.20004   NCA   NCA   NCA   NCA   1.20004   1.20004   1.20004   NCA   NCA   NCA   NCA   1.20004   1.20004   1.20004   NCA   NCA   NCA   1.20004   1.20004   NCA   NCA   NCA   NCA   1.20004   1.20004   1.20004   NCA   NCA   NCA   1.20004   NCA   NCA   1.20004   NCA   NCA   NCA   NCA   1.20004   1.20004   1.20004   NCA   NCA   NCA   1.20004   NCA   NCA   1.20004   NCA   NCA   1.20004   NCA   1.20004   NCA   NCA   NCA   1.20004   NCA   NCA   NCA   NCA   1.20004   NCA   NCA   1.20004   NCA   NCA   1.20004   NCA   NCA   NCA   NCA   1.20004   NCA   NCA   1.20004   NCA   NCA   NCA   NCA   1.20004   NCA   N		_	¥CA	5	Š	2.32E04	Z,	Ş	<u>Ş</u>	1.27E04	3.00004	ğ	<u> </u>	3.26E06	4.76506	<u> </u>	1.90E05	. 90E05
1990   NCA   NCA   NCA   NCA   1.58204   NCA   1.58204   NCA   1.58204   NCA   NCA   NCA   NCA   NCA   1.58204   NCA   NCA   NCA   NCA   1.58204   NCA   NCA   1.58204   NCA   NCA   NCA   NCA   1.58204   NCA   NCA   NCA   NCA   1.58204   NCA   NCA   NCA   NCA   NCA   1.58204   NCA	¥ 5	Z 2	<u> </u>	న్ల న	<u>5</u> 5	2.55504	<u>ک</u> ک		1.20E04	1.27E04	2.00E04	Z S	NCA	2.77506	4.04E06	₫:	1.80E05	. 80005
1995   NICA   NICA   NICA   NICA   C.278204   NICA   C.58204   L.74204   L.50204   NICA   NICA   C.278204   NICA   NICA   NICA   NICA   L.58204   L.74204   L.50204   NICA   R.2.78204   R.C.   NICA   L.58204   L.74204   L.50204   NICA   R.2.78204   R.2.   R.C.   NICA   L.278204   L.74204   L.50204   NICA   R.2.78204   R.2.   R.C.   NICA   L.10205   R.2.   R.C.   NICA   L.10205   R.2.   R.C.		: Z	5 ₹	5	<u>5</u>	3.88E04	Ş	_	I. ZUEU4	1.74504	I. ZUEUS	<u> </u>	1. /UEO4	5.69E06	8.31E06	_	1. 80E05	1.80E05
1980   NCA   NCA   NCA   NCA   NCA   1.75E04   1.74E04   1.30E05   NCA   1.75E04   1.74E04   NCA   1.75E04   1.10E05   5.98E06   5.98E06   1.74E04   1.90E05   NCA   1.14E07   NCA   NCA   1.14E07   NCA   NCA   1.14E07   NCA   NCA   1.14E07   NCA	_	_	XC XC	<u>ک</u>	YÇ.	3.88E04	Ş		క్ష		4.50E04	Ş	<u> </u>	4.89E06	7.15506		2.61E05	2.61505
1990   NCA		= 1	<b>5</b> 5	<u> </u>	<u>Ş</u> Ş	4.27E04	<u>ک</u> ک		1.65E04	1.74504	3.00E04	NC.	Z S	4.10E06	5.98E06		2.48E05	2.48E05
1995   W.		-	រួថ្ន	Ş	្ត្	1.01505	្ត្	-	I. 65EU4	1. /4504	1.80E04	<u> </u>	2.33E04	4. 10506	2.98E06	4.10506	2.48505	7.4850>
1990   NCA   NCA   NCA   NCA   NCA   1.11E05   NCA   NCA   1.00E04   3.03E04   6.00E04   NCA   NCA   NCA   1.22E05   NCA   NCA   NCA   1.22E05   NCA   NCA   NCA   1.22E05   NCA   NCA   1.00E07   NCA   NCA   1.22E05   NCA   NCA   1.00E07   NCA   NCA   1.22E05   NCA   NCA   1.00E07   NCA   NCA   1.22E05   NCA   NCA   NCA   1.00E07   NCA   NCA   1.00E07   NCA   NCA   1.22E07   1.00E07   NCA   N	_	_	Ş	<b>5</b>	5	1.01805	Ş	ACA MC	<u> </u>		0 PO	<b>S</b>	<u> </u>	1.14E07	1 4.3E03	ن د کو	<u> </u>	4.86E05
2000         MCA         NCA         NCA         NCA         NCA         1.2007 <th>195</th> <th></th> <th>2</th> <th>2</th> <th>Y C</th> <th>1.11E05</th> <th>Y i</th> <th></th> <th>3.00E04</th> <th></th> <th>6.00E04</th> <th>NCA</th> <th>Ş</th> <th>8. 32E06</th> <th>1.20507</th> <th>NC.</th> <th>4.37E05</th> <th>. 37505</th>	195		2	2	Y C	1.11E05	Y i		3.00E04		6.00E04	NCA	Ş	8. 32E06	1.20507	NC.	4.37E05	. 37505
1980   1980		_	<b>1</b>	4. 11EO4	<b>Ş</b> Ş	1.11505	<b>5</b> 5				3.60E04	<u>ک</u> ک	NCA	8.32E06	1.20£07	Z S	4.37E05	1.37805
1990         HCA         6.06EQ4         3.91ED5         2.44ED5         HCA         5.00EQ4         4.65EQ4         1.00EQ5         HCA         1.00EQ5         HCA         1.00EQ5         1.00EQ5         1.37EQ7         1.99EQ7		_	<u> </u>	វត្ត	3.55805	2.22E05	វ្ន	Ş			NCA 1.50E05	<u> </u>	<u> </u>	1.90507	7 78F07	<u> </u>	<u> </u>	7. 55505
1980   1.28E05   1.48E05	199		5	6.06EO4	3.91E05	2.44E05	<u>Ş</u>	_		_	1.00005	NCA	S	1.37E07	1.99E07	¥ ∑	NCA	6. 49E05
1985   NCA   1.28E05   NCA   NCA   1.28E05   1.07E05   1.00E05   1.00E			2 5	6.06E04	3.91805	2.44E05	<u>5</u>		5.00E04	4.65504	6.0E04	NCA NCA	Z S	1.37E07	1.99E07	Ž,	6.49E05	6.49E05
1.28ED5   NCA   1.22ED5   8.45ED5   5.28ED5   7.61ED5   NCA   1.25ED5   1.07ED5   1.25ED5   1.07ED5   1.25ED5   1.07ED5   1.25ED5   1.25ED5   1.07ED5   1.25ED5   1.25ED5   1.07ED5   1.00ED5   1.	_	_	<b>1 2</b>	<b>1</b>	7.68E05	4.80E05	Š	NCA	<u> </u>	1.07E05	Ş Ş	S S	ž ž	4.08E07	5.95E07	<u> </u>	5 2	1.63506
1980   N.C.A   1.72200   N.C.A   N.C	56	7	<b>Z</b>	1.22E05	8.45E05	5.28E05	7.61E05	<u>Ş</u> Ş	1.25E05	1.07E05		2.50E05	NCA	3.41E07	4.98E07	Z .	Ş	1.55E06
1985   NCA   NCA   2.06E05   1.35E06   8.46E05   NCA   NCA   NCA   NCA   2.13E05   NCA   NCA   2.12E05   NCA   NCA   2.12E05   NCA   1.32E06   1		_	រួវ្ន	2.06E05	8.43E05	5.28E05 8.46E05	7.61E05	<u>Ş</u>	1.25E05 NCA	1.07E05	1.25E05	1.25E05	<u> </u>	3.41E07	4.98E07	<u> </u>	<u></u>	1.55E06 NGA
1990         N.C. 1.16EDS         N.C. A         2.06EDS         1.49EDG         9.31EDS         1.34EDG         N.C.A         2.21EDS         2.13EDS         2.00EDS         1.00EDS         N.C.A         1.01EDB         1.01EDB           1980         N.C.A         1.49EDG         9.31EDS         1.34EDG         N.C.A         1.34EDG         N.C.A         1.01EDB         N.C.A	_		MCA	2.06E05	1.35E06	8.46E05	XCX	MCA	_	2.13E05	NCA	NCA	Ş	8.15E07	<b>Ş</b>	Ş	NCA	3.26506
1980 NGA NGA 1.21E05 NGA 1.21E06 NGA NGA 1.21E05 2.10E05 2.00E05 2.00E05 1.00E05 1.01E08 NGA NGA 1.21E05 NGA	195		NCA NCA	2.06E05	1.49E06	9.31E05	1.34E06			_		3.00E05	NCA	6.83507	1.01E08	Ž,	V C	3.10E06
1985   NCA   NCA   2.81E05   1.87E06   1.17E06   NCA   3.27E05   NCA   NCA   1.04E08   1.50E08		١	<u> </u>	2 81505	1.49E00	7.31505	NCA DA	_	2.21E05	2.13505		2.00E05	<u>ځ</u> ک	6.83E0/	1.01E08	<b>5</b> 5	֓֞֞֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓	J. TOEOB
1990         2.95E05         NCA         2.81E05         2.06E06         1.29E06         1.83E06         NCA         NCA         3.175E05         3.75E05         3.75E05         3.75E05         3.75E05         1.04E08         1.50E08         1.50E08           1900         NCA         1.27E05         1.27E06         1.27E06         1.37E05         3.75E05         3.75E05         1.04E08         1.50E08         1.50E08           1990         NCA         1.27E05         3.36E05         2.35E06         1.47E06         NCA         NCA         NCA         NCA         NCA           1990         3.68E05         3.46E05         3.50E05         2.35E06         1.37E06         2.33E06         1.77E08         NCA         NC		_	¥C¥	2.81E05	1.87506	1.17506	Ş	NC.	Ş Ş	3.27E05	<u>ر</u> ک	Ş	Ş	Ş Ş	Š	Ş	Ş	4.89E06
2000         NGA         2.98E05         NGA         1.29E06         1.39E06         NGA         NGA         1.04E08         1.50E08	<u>~</u>	ċ	KCA MCA	2.81E05	2.06E06	1.29E06	1.83E06	NCA NCA	NCA	3.27E05	3.75E05	NCA	NC.	1.04E08	1.50E08	<b>Y</b>	NC.	4.65E06
1990 1-88E05 1-88E05 1-85E06 1-47E06 1		٧.	Ş	2.81E05	2.06E06	1.29606	1.83E06	5 5	3.31E05	3.27E05	3.00505	3.00E05	NCA	1.04E08	1.50508	۷ کو	V V	4.65E06
5.68E05         3.58E05         3.50E05         2.59E06         1.62E06         2.33E06         NCA         4.49E05         5.00E05         5.00E05         NCA         1.37E08         NCA           1.26E06         1.20E06         1.62E06         2.33E06         1.62E06         2.33E06         1.62E06         2.33E06         1.37E08         1.37E08         1.37E08         1.37E08         1.37E08         1.37E08         1.37E08         1.37E08         NCA         NCA         NCA         1.37E06         NCA         NCA <th></th> <th>_</th> <th>3 85805</th> <th>3.50505</th> <th>33506</th> <th>1.4/506</th> <th><u> </u></th> <th><u> </u></th> <th>S S</th> <th>4.49E05</th> <th>Š Š</th> <th><b>5</b> 5</th> <th><u>ح</u></th> <th>Y S</th> <th><u>ح</u></th> <th><u> </u></th> <th>5 5</th> <th>Y Y</th>		_	3 85805	3.50505	33506	1.4/506	<u> </u>	<u> </u>	S S	4.49E05	Š Š	<b>5</b> 5	<u>ح</u>	Y S	<u>ح</u>	<u> </u>	5 5	Y Y
2000         B.68E05         3.58E05         3.59E06         1.62E06         1.37E06         NCA         4.41E05         4.49E05         4.00E05         4.00E05         NCA         1.37E08         1.99E08           1990         1.26E06         1.32E06         1.20E06         8.27E06         5.17E06         7.45E06         7.45E06         1.29F06         NCA	-	Ö	3.85805	3.50005	2.59E06	1.62E06	2.33506	NCA			5.00E05	Ş Ş	S S	1.37E08	NC.	NCA	NC.	5.20E06
1990 1.26E06 NGA 1.20E06 NGA 4.70E06 NGA	_	خ	3.85E05	3.50E05	2.59E06	1.62E06	2.33E06	V V		_	4.00E05	4.00E05	NCA	1.37E08	1.99E08	Y S	NCA NCA	5. 20E06
1.32E06 1.32E06 1.20E06 8.27E06 5.17E06 7.45E06 NCA NCA 2.97E06 2.50E06 NCA NCA 6.83E08 NCA NCA 1.22E06 1.22E06 1.22E06 8.27E06 5.17E06 7.45E06 NCA NCA 2.97E06 2.50E06 NCA 6.83E08 NCA	_	÷	NCA 1 33504	1.20506	NCA S	4.70606	<u> </u>	NC.	_	2.97506	NCA	NCA NO	Š	<u></u>	<u>ح</u>	S S	۲ <u>۲</u>	۷ <u>۲</u>
1.26E06 1.32E06 1.20E06 8.27E06 5.17E06 7.45E06 NCA NCA 2.97E06 2.0E06 2.0E06 NCA 6.83E08 NCA	199	_	1.32506	1.20506	7.32E06 8.27E06	5.17506	7.45E06	NCA			2.50E06	S S	ŞŞ	Ş Ş	<u> </u>	NCA	NCA	NCA NC
	200	-	1.32E06	1.20506	8.27E06	5.17E06	7.45E06	NCA	NCA		2.0F06	2.00E06	NCA	6.83E08	NCA	NCA	NCA	NCA

WINE ACCUISITION COST (ax. B.O.P.) INCINC. 1980 BOLLANS

POSSE SERVICE SERVICE SERVICES SERVICES AMBRICAS MARKETS MARKETS SERVICES (MISSES MISSES) MISSES MARKETS AND A

		Ι			-4 -					-						_		_	_	_		_		_	_			_	_	_	_		_		٦
KBINES	JATE:SCIACH 21XA	1.73504	1.64504	1.48504	2.87E04	2.59E04	2.46504	5.14804	4.64504	4.41504	6.1050	5. 79504	3. Suco	8. 16504	7.76504	7.37504	00E04	9.61504	9.13504	9.68204	1.41605	1.34505	38E05	2.82E05	2.68E05	Ş	4.23E05	3.93E05	7.84.00	Ş	5.36E05	5.12E05	<u> </u>	Š	SZ.
SERIO TURBINES	VERTICAL AXIS	1.73504	1.64504	1.48E04	2.87F04	2.59504	2.46E04	<b>5</b>	4.64E04	4.41E04	Ş	5. 79E04	2000	7. 2.3EU	2	7.37504	7.0000	រុទ្ធ	Ş	8.68504	វ្	<b>≨</b>	ర్జ్ క్ష	<u>Ş</u>	<b>5</b> 5	KC A	MC.	NCA S	ָלֻ עַּ	XC.	NC.	NC N	<u>خ</u> کے پر	NC.	NCA
_	PHOTOCHENICAL	NCA	Y Y	6.05E04	Ş		S	Į,	<u> </u>	8.12E03	<u>5</u>		ž		Ķ	<b>≨</b>	<b>5</b> 5	រ្ទ័	<b>K</b> CA	Z S	<u> </u>	MCA	<u> </u>	5	<u> </u>	2	¥Ç	Ž,	<u> </u>	Ş	2	VCA NCA	5 S	NC.	NCA
LTAICS	ACT17/ELY	1.45805	1.09E05 7.25E04	7.25E04	4.82E05	2.41E05	2.41E05	1.93506	9.65E05	9.65E05	2.89E06	2.17E06	1.45506	NC ASS	4.34E06	2.89E06	2.89E06	7.23E06	4.82E06	4.82E06	1.81507	1.21507	1.21E07	<b>∑</b>	2.41607	5	<b>∑</b>	3.62E07	3.62EU/	<u> </u>	<b>∑</b>	.82E07	V V	5	MCA
PHOTOVOLTAICS	77.17 17.17	1.21E05	9.0/E04 6.05E04		4.05505	2.03E05	2.03E05	1.62506	8.12605	8.12E05	2.43E06	1.83506	1.22506	4.86506	3.65E06	2.43E06	2.43506	6.08E06	4.05E06	4.05E06	1.52E07	1.01E07	1.01EO/	3.04E07	2.03E07	NG.	-	3.04E07	3. U4EO/	Ş Ş	4.05E7	4.05E7	S S	5	2.03508
	POLYHER SOLID	NCA	<u> </u>	6.0E02	<u>ح</u>	Į Š	2.0203	Š	NCA	8.0E03	Z)	۲ پر	Y S	1 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	ACA M	NCA	ទ្ធន	5 5	NC	Ž,	្ត ភ្ន	<b>₹</b>	ý ý		<u>5</u> 5	§ 5		Š	_	Ş			_	S S	NCA
MEL CELLS	HOLTEN CARBONATE	NCA NCA	Ž <u>Ž</u>	2	క్ష క్ష	Š	NC.	\$ 5	NC.	5	<b>5</b> 5	<b>1</b> 2	Š	<b>Ş</b>	\$	<u>ح</u>	<u> </u>	5	KCA KCA	Y S	<u> </u>	5.0E04	2.5E04	Ş	6.0804	٠ ٢	Ş	NC.	9030.9	រុំ	NCA	8.0E04	NCA NCA	YC.	4.0805
£	<b>У</b> СІР БНОЗБНОКІС	NCA	3.75E02	2.25E02	NCA PRED	1.25E03	7.5E02	Y KC	5.0003	3.0£03	Z N	1.13804	4 5503	3 S	2.25E04	1.50004	9.0503	3.75E04			<u> </u>	_	3.13E4 NCA		6.25E04	NCA.	KCA	9.38E04	7. SE04	Š	1.25505	1.0505	NCA NCA	6.25E05	5.13E4
OKCS		1.58803	1.58803	1.58203	3.96203	3.96203	3.96E03	1.14804	1.14E04	1.14504	1.57E04	1.57504	57806	2.73504	2.73E04	2.73504	2. / 3504	4.18504	4. 18E04	4.18E04	9.10504	9.10E04	9.10504	1.62E05	1.62E05	2.26E05	2.26205	2.26E05	2.26E05	2. 78E05	2.78E05	_	1.60E06		1.60E06
Since	KINEHVLIC	VON	3.75£02	3.75202	វ្	1.25£03	1.25803	<u> </u>	5.0203	5.0503	₹ 2	7 KG	50803	£ 5	<b>∑</b>	. SOE04	- 20E0	<u>Ş</u>	2.50E04	2.50804	្ទ្	5.25E04	NCA N	5	1.11505	Ş	ž	Ş	50200	§ <u>Ş</u>	NCA	2.21E05	Y S	Ş	NCA
STIMENES	FISTON	NCA MCA		2	<u> </u>	1.25E03	1.25E03	<u> </u>	NC.	_		22			NC.	5			<u>ځ</u>			<u>5</u>			5 5		<b>∑</b>	<u>ح</u>	5 S	NC.	NCA.	Ž Ž	<u> </u>	NC.	NCA
	ADIAMATIC	MCA	5	2	2 2	5	<b>₫</b>	រួ		<u> </u>	<u> </u>	្ត្	Y.	Ž	NC.	<b>5</b>	<b>5</b> 5	Ş	<u>ح</u>	<u> </u>	<u>5</u>	6.86E04	NCA	Ş	1.33205	Ş	YC.	2.17E05	2.1/605	<u> </u>	3.21E05	3.21E05	NCA NCA	3.47E05	3.47E05
DIESELS	TURBO- CHARGED	NCA NCA	2	2	1.43203	1.57E03	1.57503	4.49E03	4.94E03	4.94203	6.49503	7. 14E03	7,14803	1.31E04	1.31E04	1.44E04	2.41E04	2.41E04	2.65E04	2.65E04 4.33E04	4.33E04	4.76E04	8. 40E04	8.40E04	9.24E04	1.37E05		_		2.03E05	2.23E05	2.23E05	2.19EU0	2.41E06	2.41E06
	COMBONIDED	MCA MCA	5	្ត	វត្ត	5	<u> </u>	2	<u>خ</u>	<u> </u>	<u>د</u>	<b>5</b>	MCA	Ş	<u>5</u>	<u>ک</u>	5 5	3.86204	4.24E04	4.24E04	6.93E04	7.62E04		~	1.48E05		_			_	3.57E05	3.57505	NCA SOFO	3.85E06	3.85E06
	OPEN-CYCLE NON-RECENERATIVE	20	<b>5</b>	<b>5</b> 5	2	2	<b>5</b> 5	5	<u>ئ</u>	1	រុទ្ធ	<b>∑</b>	Ş	<b>5</b>	<u>র</u>	¥2.	7. / OEO	5	5.45E04	5.45E04			1.10E05		1.85805			2.53E05	2.53E05	_			1.08E06	_	1.08E06
CA: TURBINES	CLCLE	2 <b>2</b>	2	<b>5</b>	5	<b>5</b>	<u>ک</u> ک	2	<u>5</u>	<b>5</b>	<b>5</b> 5	<u> </u>	5	ర్జ	Z)	<u>ح</u>	5 5	MCA	2	<u>ک</u> ک	5	Ž	<u> </u>	<b>Y</b>	<u>ح</u>	2	KC.	Y C	<b>5</b> 5	3.47505	3.47E05	3.47E05	MCA 19506	1.19506	1.19E06
3	NECENERATIVE OPEH-CYCLE	NCA NCA	2	<b>5</b> §	5	<b>5</b>	<u> </u>	\$	<b>∑</b>	5 5	<b>5</b> 5	2	XCX	Y)	5	5 5	5	5	5.45E04	3.43E04	<b>Ş</b>	1.10E05	1. 10E05	5	1.85E05	NCA.	స్ట	2.53E05	2.53505	3.15805	3.15E05	3.15605	1.08506	1.08EU6	1.08E06
	YEAR	1980	1990	2000	1985	1990	2000	1985	1990	2002	1980	1990	2000	1980	1985	1990	1980	1985	1990	2000	1985	1990	2000	1985	1990	1980	1985	1990	2002	1985	1990	2000	1980	19%0	2000
	POWER, KW	1.5			•		2	2		_	2			0.09			0.001			95	?		0005			750.0		•	-	-		- 6	2000.0		1

PAKAMETER: ANNUAL GEM COSTS UNITS: 1980 DOLLARS

RINES	1ATES(2130H 21XA	1.81503	1.42E03	1.38503	5.15E03	3.91503	3.83503	1.87E04	1.38E04	1.36E04	2.76EU4	2.02E04	1.99E04	1.99E04 5.38F04	3.94E04	3.88E04	3.88E04	6.48E04	6.29E04	6.29E04	1.60505	1.56£05	1.56E05	3, 19505	3.11E05	3.11E05	NCA 1	4./9E05	4.6/EUS	NCA	NCA	6.23E05	6. 2 SEUS NCA	NCA	NCA NCA
WIND TORBINES	VERTICAL AXIS	1.81603	1.42503	1.38E03	5.15E03	3.83E03	3.83503	NCA S	1.36504	1.36504	Ş	2.02E04	1.99504	NCA	NC.	3.88E04	3. 88E04	<u> </u>	NCA	6. 29 604	\ \{ \{ \}	NCA	<b>S</b>	<u> </u>	NCA	NC.	<u>Ş</u>	خ خ د ع	Y S	NC.	NCA	<b>5</b> 5	Y Y	NCA	NCA
		NCA	<u>Ş</u> Ş	֓֞֞֜֞֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓	N.	<u> </u>	4.40E04	<b>5</b>	<u> </u>	1.76E05	Ž	NCA	<b>≨</b>	2.6!E05	NC.	<u>Ş</u>	ž	<u>ځ</u>	ζ.	<b>S</b>	<b>5 5</b>	Ş	SZ N	<u> </u>	Y V	NC.	<u>Ş</u>	ל אַ ב	Z Z	NC.	NCA	Y CA	Z Z	NCA	NCA N: A
PROTOVOLTAICS	VC11/VELY	-7		1.89504	8.66E04	7. 39504	6. 31E04		2.96E05	_	_			3. 74E05			7.50505	_	_	_			3	<u> </u>	و و	9	NCA	NCA Perot	9.38506			NCA .	1.24E07 NGA	N C	NCA NCA
PROTON	TAJT PLATE	1.81504	1.54504	1.32504	6.05504	5.14504	4.40E04	2.42E05	2.06E05	1.76505	3.63E05	3.08E05	2.61E05	2.61E05	6.19E05	5.29E05	5.29E05	1.21506	8.72E05	8.72E05	NCA 2 STEDA	2.17506	2.17E06	*CA 5 14506	4.35E06	4.35E06	NCA	NCA 6.1506	6.62E06	NCA	NCA	8.72E06	8.72E06	NCA NCA	NCA 4.35E07
	SOLID	NCA	<u>ئ</u> يو	1 28502	Z,	<u> </u>	4.25E02	Z S	<u> </u>	1.70503	NC.	<b>Y</b> C	NCA	2.55E03	¥Ç X	NCA	Z S	<u> </u>	NC.	NC.	<u> </u>	NCA.	NCA	5 S	NC.	NCA	NCA	Y S	Y Z	NCA I	NCA	NCA	N N	NCA N	NCA NCA
FILET. CELLS	HOLTEN CARBONATE	NCA	5 5	្ត្	NCA NCA	<u> </u>	NCA	Y S	S S	NC.	NC.	<u>Ş</u> Ş	ַבְּי	Ş	NCA	NCA	Š	<u> </u>	NCA	NCA	N CA	2.50E04	1.25604	N CA	3.00E04	2.00E04	NC.	NCA NCA	3 00F04	NCA	NCA	NCA 9050	4.00E04	NCA NCA	NCA 2.00E05
<b>.</b>	VCID BHOSBHOKIC	NCA	2.25E02	9 00601	NCA	7.50502	3.00002	MCA.	3.00503	1.2003	MCA	4.50E03	3.00E03	1. BUEUS	9.00E03	6.00E03	3.60E03	1. SORO4	1.00004	6.00E03	MCA NC	2.25E04	1.25604	<u> </u>	2.50E04	2.00E04	NCA	NCA 75504	3. / SEU4	NCA NCA	NCA	5.00E04	4.00E04	NC A	2.50E05 2.00E05
ORCS		2.94E02	2.94E02	2.94E02	1.10503	1.10503	1.10503	1.27E03	1.27503	1.27503	1.74E03	1.74E03	1.74.503	3.03.603	3.03E03	3.03E03	3.03E03	4.65E03	4.65E03	4.65E02	1.0/604	1.07E04	1.07504	2.13504	2.13E04	2.13E04	3.27E04	3.27604	3.27504	4.49E04	4.49504	4.49E04	4.49E04	2.97E05	2.97E05 2.97E05
Sun	KINEWYLIC	Y S	6.75801	6.75E01	<b>5</b> 5	2.25E02	2.25E02	<u>Ş</u>	6.00802	6.00E02	MCA M	<b>NC</b>	8 25En2	NCA	Ş	1.5003	1. 50203	<u> </u>	2.50E03	2.50E03	<u> </u>	6.25E03	6.25503	<u> </u>	1.11804	1.11504	<u>\$</u>	Y S	1.66504	NC.	NCA	NCA NCA	2.21E04	S S	NCA NCA
STURLUNGS	PISTON	NCA NCA	75501		Ž	2.25E02	2.25E02	<u>ځ</u> ځ	្ន	6.00E02	Z.	<u> </u>	<u>Ş</u>	<b>∑</b>	Ş	Y C	5 5	Ş	<u>ح</u>	<u> </u>	<u>Ş</u>	NCA	<u>ځ</u> ک	<b>5</b> 5	NCA	Z :	<u>ح</u>	\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \	ž	NCA	NC.	Z Z	S S	NCA	NCA NCA
	ADIABATIC	MCA	<u> </u>	MCA.	NCA NCA	5	Y S	<u> </u>	5	Y)	<b>5</b>	<u> </u>	<u> </u>	5	MCA	NCA NCA	<u> </u>	2	<u>Ş</u>	Z Ç	֓֞֞֞֓֓֓֞֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓	5.78E03	5.78E03	<u>ځ</u> ک	1.12E04	1.12504	S S	<b>5</b> 050	1.80E04	NC.	NCA	2.71E04	2. /1E04 NCA	NC N	2.92E05 2.92E05
DIESELS	TURBO- CHARGED	NCA NCA	្ត្	<b>≨</b>	1.21E02	1.33202	1.33E02	3. 78E02	4.16E02	4.16E02	5.47502	5.47E02 6.02E02	6.02E02	1.10E03	1.10203	1.21603	2.03E03	2.03E03	2.23E03	2.23E03	3.65E03	4.01E03	4.01E03	7.08E03	7.79E03	7.79E03	1.16E04	27504	1.27504	1.71E04	1.71E04	1.88E04	1.88E04	1.84E05	2.03E05 2.03E05
	COMPOUNDED	NCA	12	Ş	<u>ک</u> ک	Ş	Y CY	1	<b>∑</b>	<b>∑</b>	<u>ک</u>	<b>5 5</b>	§ Ş	2	<b>5</b>	<b>5</b>	<u> </u>	<b>1</b>	3.58E03	3.58203	5 2	6.42E03	6.41E03	MCA 1 1 3 E O A	1.24504	1.24E04	NCA	1.85504	2.03E04 2.03E04	NCA NCA	2.74E04	3.01E04	3.01E04	2.95E05	3.24E05
	OPEN-CYCLE NON-RECENERATIVE	MCA	NC.	<b>≨</b>	<u> </u>	MCA	<u>5</u>	រ្ត័	Ş	Š	Z Z	្ត្	<b>5</b>	NC.	<u>Ş</u>	Ş	2.05E03	្ទ្	603	603	<u> </u>	E03		1.03E04	1.03804	1.03E04	1.41E04	1.41504	1.41504	1.75E04	1.75E04	1.75504	1. 75E04 5. 97E04	5.97E04	5.97E04 5.97E04
CAS TURBINES	CACLE	NCA ECA	2	<b>∑</b>	<u> </u>	2	NCA	<u> </u>	2	MCA	<u>ک</u>	្ត្	\$ \$	5	¥Ç	NC.	Š Š	<u>Ş</u>	<b>₫</b>	KC.	<u> </u>	Ž	Š	<b>5</b> 5	<u>Ş</u>	KÇ.	<u>Ş</u>	۲ <u>۲</u>	<u> </u>	<u>5</u>	1.93204	1.93504	1.93E04	6.37E04	6.37E04 6.37E04
	NECENERATIVE OPEN-CYCLE	NCA NCA	12	ర్జ	NC A	KÇ.	<b>5</b>	្ត្	5	KÇ.	<u>5</u>	<u>ح</u>	<b>1 2</b>	MCA	<b>₹</b>	Ž,	<u> </u>	្ន	3.18E03	3.18E03	<b>5</b> §	6.40E03	6.40E03	<u>د</u> ک	1.08E04	1.08E04	KC.	KCA KCA	1.48504	S S	1.85E04	1.85E04	1.85504	6.08EO4	6.08E04 6.08E04
	YEAR	0861	1990	2000	1980	1990	2000	1980	1990	2000	1980	1985	2000	1980	1985	1990	2000	1985	1990	2000	1980	1990	2000	1980	1990	2000	1980	1985	1990	0861	1985	1990	2000		
	LEVEL, KW	1.5			5.0			20.0			90.00			0.09			9	3			250.0						750.0			1000.0			0000	2000	

ARABETER: SYSTEM EFFICIENCY UNITS: PERCENT

		_		-					_	_			۰,						_		-				-	-			-	_		_	_	
KBINES	H-PE120-NTAL AXIS	26.9	26.9	26.9	12.7	=	<u>= 7</u>	2	7.7	è :	÷ =	. S. S.	<b>8</b> .5	9 E F	9.17	8.1.8	7.77	3	46.4	9.69	9.6	9.₹ 8.0	9.67	9.67	49.6	9 97	49.6	9.67	ž ž	1 0 y	49.6	NC.	Ş Ş	NCA
WIND TURBINES	VERTICAL AXIS	26.5	26.5	26.5	29.9	29.9	29.9	36.4	36.4	, S	2	 %	38	2	41.3	41.3	<b>≨</b>	<b>∑</b>	43.9	5	Š	<u></u>	<u>Ş</u>	MCA	ZY.	<u>Ş</u>	<b>Ş</b>	Y.	د ک کو کو	[ <u>5</u>	NCA	Ş Ş	ş ş	NCA
		NCA LCA	វ្	9.5	<u> </u>	2	5.5	5	<u></u> 5	: <u>5</u>	2	<b>≨</b>	%.¥	<b>≨</b>	<u>Ş</u>	<u></u>	\$	<u>Ş</u>	<u>Ş</u>	<u> </u>	MCA	<u>ک</u> ک	្ទី	<u>Ş</u>	<u> </u>	<u>Ş</u>	NCA NCA	NCA NCA	<u>ځ</u> ک	<u> </u>	NCA	Y S	NCA	NCA
PHOTOVOLTAICS	COOLED ACTIVELY	6.9	7.5	10.5	6.9	9.0	10.5	7.5	. c		7.5	6.0	 ₹0.5	7.5	9.0	7.5.	7.5	9.0	10.5	7.5	9.0	0 5	ទ្ឋ	9.0		<u> </u>	9.0	10.5	្ត្	ž Š	10.5	NCA NCA	NCA N	NCA
rector	TALT STALT	8.7	9.5	<u></u>	9.5	11.4	13.3	9.5	13.3	•	9.5	11.4	13.3	9.5	11.4	13.3	9.5	11.4	13.3	۶. د.	11.4		9.5	11.4	 	Ş	7:11	13.3	NCA 104	۲ ا	13.3	NCA S	<u> </u>	13.3
	POLYNER	NCA	ž ž	0,5	<u> </u>	NCA	20 2	Ş	NCA S	2 2	MCA	NCA NCA	2 2	Ş	NCA	<u></u>	<u></u> 5	NCA	Ş	<u> </u>	NCA	NCA NCA	į	NCA	<u>ح</u>	<u> </u>	NC.	NCA	S S	Z Z	NC.	NC.	S S	NCA
FIEL CELLS	CARBONATE MOLTEN	NCA	, V	<u>ئ</u> ک	ទ្ធស្ន	NCA	<u> </u>	Ş	<b>5</b> 5	Ş	2	<b>5</b> 5	វ្	<b>₹</b>	<u>Ş</u>	<u> </u>	NCA	KCA MC	Ž	<u>د</u> ک	45	05 5	<u> </u>	87	25	<b>1</b> 2	NC.	25	NCA NCA	<u>د</u> ک	52	NCA	NCA NCA	52
<u> </u>	VCID LHOSEHORIC	NCA	S 85	9	Ž X	<b>*</b>	0 V	æ	8	కై	33	9 ;	¥ 5	35	9	7 5	8	0,	\$ 45	<u> </u>	9	\$ 50	S S	9	Ç Ç	<u> </u>	04	4.5	<u> </u>	ر د و د	45	NCA SCA	- -	45
ORCS		1.46	1.69	1.69	6.23	69.9	10.78	11.75	12.58	12.24	13.34	14.27	14.73	16.20	17.17	1.66F01	1.83E01	1.94201	1.94501	2. 18E01	2.31E01	2.31601	2.49E01	2.64E01	2. 54E01	2.67E01	2.83E01	2.83E01	7 70501	2.93E01	2.93E01	3.06E01	3.46E01	3.63E01
M.S.	KINEMVLIC	N SC	35.0	35.0	រ្គីភ្ន	35.0	55.C	KC.	35.0	NCA	NCA	35.0	2 2	NC.	9.50	7 Z	Ş	35.0	35.0	5	35.0	0.5	<u> </u>	35.0	D. C.	<u> </u>	<u>ک</u>	35.0	<u>ح</u>		35.0	NCA	- Y X	NCA
STIRLINGS	PREF	<b>5</b> 5	36.5	36.5	NC N	36.5	70. N	NCA	₹.5 36.5	Z,	22	5 5	NC.	NC.	<u> </u>	5	S C	5 5	្ត្	KC.	<b>Y</b>	<u> </u>	₹ N	<u>Ş</u>	\$ 5 2	5	Š	<u>Ş</u>	5 <u>5</u>	NC.	NCA	Y CY	NC.	NCA
	ADIABATIC	NCA	<u>Ş</u>	<u> </u>	្ទ្	2	<u> </u>	\$	<u> </u>	Ş	Ž,	<u> </u>	<u>Ş</u>	Z X	<u>ځ</u>	<u> </u>	Ş	46.2	40.2	5	47.8	47.8	<u> </u>	48.0	0.87	§ 5	48.7	48.7	<u>ح</u>	ξ »,	49.1	NCA	NCA 51.8	51.8
DIESELS	TURBO- CHARGED	<b>5</b> €	Ş	٠ ٢	29.6	31.1	29.0	32.0	33.6	29.5	32.5		9.0	33.7	35.4	3.3	34.5	36.2	36.2	36.0	37.8	37.8	 	39.0	39.0	2.5	39.7	39.7	7.7	38.2		37.0	40.8 42.8	42.8
	TUREO- COPPOUNDED	MCA	Y.	<u> </u>	Ş	<u>5</u>	<u> </u>	<u>Ş</u>	្ត្	Ş	<u>چ</u>	<b>1</b> 2	5	<b>S</b>	Į,	§ 2	40.7	42.7	/ 77	42.5	44.6	44.6	4.1.A	0.97	0.9	\$ <b>\$</b>	8.9	8.94	<u>ځ</u>	47.3	47.3	Ş	50.5	50.5
	OPEH-CYCLE NON-RECENERATIVE	NG NG	<u>ئ</u> پ	រុទ្ធ	<b>K</b> Ç	<u>ک</u>	5 5	<u>ک</u>	វ្ន	KC.	5 5	<b>1</b> 2	2	ু	<u>5</u>	}	5	22.5	22.5	§ 5	25.3	25.3	71.1	27.4	27.4	22.1	27.5	27.5	22.7	22.7	27.2	25.7	25.7	29.4
CAS TURBINES	CLCFE	្ត <b>្</b>	2	<u> </u>	Ş	<b>5</b> €	Ş	Y ;	<u> </u>	5	2	<b>5 5</b>	្ត្	MCA.	<u>ح</u>	1 2	2	ু ব	<u> </u>	្ន	5	<b>5</b>	<u> </u>	<b>5</b>	<b>5</b>	្ត្	5	<u>ځ</u>	∑ ;	2.5.	1.7	MCA.	7. 7.	43.2
CAS	OPEH-CYCLE RECENERATIVE	្ត <b>្</b>	NC.	<u> </u>	<u>Ş</u>	<b>5</b>	្ត្	<b>∑</b>	<u> </u>	2	<b>⊉</b> ;	<b>5</b> 5	5	Z,	<u> </u>	1 2	2	42.3	42.3	5 ₹	42.3	42.3	<b>1 2</b>	42.3	42.3	§ 5	42.3	42.3	Z .	42.3	42.3	36.6	36.6 42.3	42.3
_	AEVE	1980	1990	2000	1985	1990	1980	1985	2000	1980	1985	2000	1980	1985	1990	3 6 6	1985	1990	2000	1985	1990	2000	1985	1990	000	1985	1990	2000	1980	1960	2000	1980	1985	2000
	POWER OUTPUT	1.5		•			20.0			30.0			0.09	_		90			0 0 0			- 6	3			2.0			0.0001			0.0000		

					-	_					_																						_
TURBINES	HORIZONTAL SIXA	31.4	3.5	31.4	36.4	36.4 36.4	67.9	42.9	42.9	45.0	45.0	0.64	6.87	6.87	5.0	51.9	51.9	2.1.5 0.82	28.0	58.0	V.	58.0	28.0	V	58.0	28.0	28.0 MCA	Z V	58.0	58.0	Ž Ž	NC A	NCA
UT UNIV	VERTICAL AXIS	31.0	31.0	35.0	35.0	3.5.0	<u>ځ</u>	42.5	42.5 NC4		44.5	#	స్త	68.3	<u> </u>	<b>∑</b>	<u>ა</u>	L CA	Ş	Ž,	ŞŞ	<u>ح</u>	Š	<u></u>	MCA MC	<u>ک</u>	<u>ح</u> کے ک	NCA C	Š	NCA	NCA NCA	S S	NCA
	<b>РНОТОСИЕНІ СА</b> L	V NCV	<b>Ş</b>	¥7.6	<b>∑</b>		<u>Ş</u>	<u>5</u>	9.1.	5 ₹	호 :	. S	Š	<b>∑</b> §	<u> </u>	Ž	Z S	<u></u>	Ž	<u>ک</u> ک	<u> </u>	<u>5</u>		<u>5</u>	NCA	ACA S	ָבֶּ	NC.	NC.	V C	۷ پر	NC Y	NCA
PHOTOVOLTAICS	VCLIVELY	9.6	11.2	9.8	10.7	11.2	e .	11.2	7.0 0.0	10.7	11.2	<u> </u>	10.7	11.2		10.7	11.2		10.7	11.2	KCA.	Ş	11.2		NC.	11.2	14.9	<u> </u>	¥Ç.	14.9	V S	ŞŞ	NCA
PHOTOV	TAIT STAIT	10.6	13.9	16.2	11.6	16.2	9.01	13.9	7.91	11.6	13.9	10.6	11.6	13.9	10.6	11.6	13.9	<u> </u>	9.11	13.9	NCA.	11.6	13.9	NCA.	NCA	13.9	7.01	<u> </u>	13.9	16.2	NC.	S S	16.2
	SOLID SOLID	NCA	NCA	<b>3</b> 5	<b>∑</b>	<u>\$</u> %	Ž,	NCA	9 Z	<u>Ş</u>	NCA V	8 <u>Ş</u>	Ş	NC.	<u></u>	<b>∑</b>	NC.	<u> </u>	NCA	<b>S</b>	ទ្ធ័ន្ធ	NC	<u>ک</u>	<u>ئ</u> ک	XC.	NCA	Y CY	S S	Ş	NCA	NCA NCA	Ş Ş	NCA
FIEL CELLS	CARBONATE	NCA NCA	٠ کو	<u> </u>	Ž Ž	5	<u>ک</u> کِ	V CV	ទ្ធស្ន	Y,	<b>5</b> 5	<u> </u>	Z)	Ž,	ទ្ធ	NCA	V S	S S	NCA	8 5	Z S	NC.	65	NC S	NCA	NCA:	70	ž ž	NCA	79	NCA NCA	Ş Ş	99
<u>~</u>	VCID LHOSEHOUIC	NCA	2 2	22 Y	94	2 2	Ž,	28	7 Z	9	22	ຂ ฐ	9	2 2	G 5	S	22	Ş	NCA	22	ς χ	Ş	2 2	ς ζ	Ş	25	ر د د د	Š	52	- S	NCA NCA	25	59
ORCS		1.31	1.52	1.52 5.21	5.63	6.02	0.50		11.92	12.01	12.84	13.26	14.58	15.45	1.49501	1.65E01	1.75201	78501	1.96E01	2.08E01	2.02E01	2.24E01	2.38801	2. 14E01	2.40E01	2.55E01	2.55E01	2.51E01	2.64E01	2.64E01	2.75601	3.27E01	3.27E01
SUM	KINEMVLIC	Z Z	43.8	S Y	۲ ×	43.8	<u>ځ</u> ځ	43.8	2 2	<b>₫</b>	63.6	2	<b>∑</b>	63.68 6.04 6.04	NC.	¥Ç	43.8	5	<b>∑</b>	63.8	٠ ٢	Š	63.6	2	MCA	Y C	5.5°	<u>.</u> 5	Ş	43.8	NCA		NCA
STIRLINGS	PREE PISTON	<b>5 5 1 2</b>	45.0	Ž,	45.04	45.0	5 S	ž	45.0 NCA	ŽŽ	\$ <u>\$</u>	\$	Y CY	<u> </u>	Ş	<u>ځ</u>	<u> </u>	Ş	NCA S	<u> </u>	XCA MCA	Y C	Ş	NCA.	<u>ح</u>	Z S	5 5	NCA	NCA	Y S	אַנאַ	NCA	NCA
	ADIAMATIC	NCA																															
DIESELS	TURBO- CHARGED	2 2 2 2																															
	CONTOURDED TURIO-	NCA NCA															9.44.6			47.0			6.0		47.7				51.1				57.1
	HON-RECENERATIVE	25	<u>್</u>	2	<u> </u>	2	រុទ្ធ	<u>ک</u> ک	<b>5</b>	<u>ک</u> ک	<b>1</b> 2	SZ.	<b>∑</b>	٠ کوم	2	2	25.0					23.4	3. 5. 4. 4.	24.5		30.6					28.5	32.7	32.7
CAS TURBINES	CLCLE	7 <b>7</b>	<u> </u>	5	<u> </u>	Y C	<u> </u>	S S	1 2	Z	<u> </u>	<u>5</u>	5	2 2	5	Ş	<b>5</b> 5	<b>5</b>	¥CA	<u>Ş</u>	<u> </u>	NC.	ָבֶּי בְּי	2	MCA	<u>ح</u>	<u> </u>	1 C	37.0	46.3	NCA 18	38.2	48.0
CAS	OPEH-CYCLE	22	2 2	5	<u> </u>	2 2	រុទ្ធ	2	Ş	2	<b>5</b> 5	5	5	<b>5</b> 5	Ş	<b>∑</b>	67.0	5	<b>∑</b>	67.0	MCA.	Ž,	0.74	2	5	47.0	67.0	, c	47.0	47.0	40.7	47.0	47.0
	#VZX	1980 1985	1990	1980	1985	200	1985	266	1980	1985	2000	1980	1985	1990	1980	1985	1990	1980	1985	980	1980	1985	266	1980	1985	1990	2000	1985	1990	2000	1980	1990	2000
	LEVEL, KW	1.5		5.0			20.0		30.0			60.0			100.0			250.0			200.0			750.0	-		-	a.0001			2000.0		

ANAMATER: ANNUAL PUEL CONSUMPTION UNITS: BELL

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KBINES	HORIZONTAL	٥	•	•	<b>-</b>			0	-	-	•	0	-	- c		•	0	- ·	-		٥,	> 0		•	<u>ځ</u> ۲			NC.	<u> </u>	<b>-</b>	) V	Ş	0	0	<u>Ş</u> Ş	<u> </u>	NCA
WIND TURBINES	VERTICAL AXIS	٥	0	-	-		•	0	<u>ځ</u> د	-	· •	Z,	-	_	Š	NCA	0	- i	<u> </u>	Š	•	<u> </u>	<u> </u>	NCA	YZ:	<b>S S</b>	NC N	NC.	Z X	V S	ָבֵּ בְּ	Š	NCA	NCA	XCX X	Š Š Ž	NCA
	- РНОТОСНЕИІ САL	NCA	MCA	<u>ځ</u>	o \$	2	Ş	0	<u>ئ</u> چ	<u> </u>		Ş	<u>ک</u>	<b>Ş</b> a	• <b>≨</b>	<u>Ş</u>	<u>Ş</u>	<u>Ş</u>	<u>د</u> ک	N N	ž	Y :	<u> </u>	<b>∑</b>	<b>∑</b>	<u> </u>	K Z	స్ట	Š	Š	۲ ک د ع	NCA.	NCA	NCA	V V	¥ 5	NCA
PHOTOVOLTAICS	ACTIVELY COOLED	•	-	0	0	-	-	-	0		-	-	٥	-	ວ <u>ຊ</u>	0	•	0	<u> </u>	•		<u>ځ</u>	-		NC.	<u>ځ</u>	<b>-</b>	Ž,	ŞÇ M	•	0 2	<u> </u>	Ş	0	NCA NCA	<u> </u>	NC.
РИОТОН	TAJT 3TAJT	٥	•	•	• • —	<b>-</b>		•	0	- c	-	•	0	-	-		۰	0	<b>o</b> c		•	<u>ځ</u>	- c		Ş	0	> c	NCA.	NC.	0	٥	٠ ٢ ٢	0	0	NCA 10	Y S	0
	SOLID	NCA	NC.	NCA	8.07E07	<u>Ş</u>	NC.	2.69E08	<u>ک</u> ک	֭֓֞֞֞֜֞֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֡֓֞֓֓֓֓֞֡֓	1.08E09	NCA N	Y C	NCA 1	NCA CA	Š	XC.	SZ.	<u> </u>	<u>Ş</u>	Ş	<u>S</u>	<u> </u>	Ş	NCA			Ş	NC.	¥Ç	ŽŽ				NCA	Š	V.
FIEL CELLS	CVERONVIE MOLIEN	NCA	Ş	٠ کو کو	្ត្	YC.	NC.	Ş Ç	<u> </u>	Ž,	NCA	<b>∑</b>	5	<u>ح</u>	YC.	NCA	Š	၌ နှ	<u> </u>	<u>Ş</u>	MCA	<u>ک</u>	1 SOF 10	1.35£10	NC.	NCA PCA	2. 59F10	MCA	KCA KCA	NC.	3.89£10	ָבֶּ בַּ	NCA C	5.18E10	NCA NCA	S S	2.59E11
	PHOSPHORIC PROSPHORIC	NCA	1.15E08	1.06E08	NCA MCA	3.83508	3.53508	3.37E08	NCA	1.53509	1.35E09	NC.	2.30E09	2.12EU9	NCA CA	4.60E09	4.24E09	4.06E09	7 0850	6. 73E09	5.98E09	<u>Ş</u>	1.68E10	1.49E10	NC.	3.36E10	2.98E10	NCA	NC.	5.04E10	4.4/EIU	<u> </u>	6.77E10	5.96E10	NCA NCA	NCA 3,36E11	2.98E11
ORCS	_	2.76E09	2.55E09		2. 32E09	2,15E09	2.01E09	2.01E09	4.99E09			6.60E09	6.05E09	5.66F09	1.10E10	9.97E09	9.40E09	9.40E09	1.67E10	1.39E10	1.39E10	3.38E10		2.91E10	6.01E10	5.40510	5.10510	8.48E10	7.56E10	7.13E10	7.13610	0.64F10	9.18E10	9.18E10	4.40£11	3.89E11	3.71E11
SUL	KINEHVLIC		YZ.		•		m	m'	<u> </u>		~	Ş	NCA 31800	2.31E09	NCA		4.61E09	4.01509	<u> </u>	7.69E09	7.69E09	NCA E	1.92E10	1.92810	Z N	<u>ა</u>	3.84510		NCA	S N	5.77E10	֓֞֞֞֓֓֓֓֞֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓	Ş	7.69E10	NC.	Y S	Z V
STIRLINGS	FISTON	NCA	¥2.	1.11508	Ž	KCA	3.67E08	3.6 E08	<u> </u>	<u> </u>	1.47E09	Z.	<u>خ</u>	Ş	<u>Ş</u>	NCA.	<u>ح</u>	\$ \$	KC.	<u>پر</u>	Z i	<u>د</u> ک	<b>Ş</b>	<b>∑</b>	<u>ک</u> ز	5 5	S	NC.	<u>ح</u>	Š Š		NCA	NCA	NCA NO	N CA	A CA	NCA
	ADIABATIC	NCA	ACA MCA	<u> </u>	K V	MCA	<u>ځ</u>	<u>ک</u> ک	<u> </u>	<b>∑</b>	χζ	<u>چ</u>	<u>ک</u> کِ	<u> </u>	<b>∑</b>	NC.	<u>ک</u>	<b>S</b>	<u> </u>	<b>∑</b>	MC.	<b>၌</b>	<b>5 1 1 1 1 1 1 1 1 1 1</b>	1.41E10	¥Ç	<u>ა</u>	2.30210		NCA	4.15E10	4.15E10	5 <u>5</u>	5. 48E10		NCA	NCA 50F11	2. 60E11
DIESELS	TURBO- CHARGED	NCA	<u>S</u>	<u> </u>	S. 00E08	4.55E08	4.33E08	4.33608	1.68E09	1.60E09	1.60E09	2.74E09	2. 17E09	2.37E09	5.28E09	4.79E09	4. 56E09	4. JOEO 9	7.80E09	7.44E09	7.44E09	2.06E10	1.78E10	1.78E10	3.99E10	3.03E10	3.42510	5.89E10	5.34E10	5.09E10	5.09E10	7.76E10	6.71E10	6.71E10	3.64E11	3.30E11	3.15E11
	COMPOUNDED	NCA	<b>1</b>	<u> </u>	5	₹Ç	<b>5</b>	<u>ک</u> ک	្ត្	2	NCA	<u>ح</u>	<u> </u>	Ş	Ş	<u>ა</u>	KCA.	<u> </u>	<u> </u>	6.61E09	6.30E09	ర్జ	1.65510	1.58E10	¥C¥	3.17510	2.93510	NG.	4.53E10		4.31E10			. ~	NCA	2.80E11	2.67E11
	OPEN-CYCLE NOW-RECENERATIVE	NCA TCA		<b>≨</b>	¥Ç	NC.	<u>ح</u>	<u>ئ</u> ک	<u>ک</u>	<u>Ş</u>	<u>ځ</u>	<u>ک</u>	<u>د</u> ک	<b>Y</b> C	MCA	<u>ځ</u>	NC.	7.88E09	<u>ا</u> ک	1.20210	1. 20E10	<b>S</b>	A 66.10	2.66E10	6.38E10	6.38E10	4.91610	9.13E10	9.13E10	7.34E10	7.34E10	1.19211	9.90E10	9.90E10	5.24E11	5.24E11	4.58E11
CAS TURBINES	CACLE	NCA	<b>1</b>	<u> </u>	<b>5</b>	<b>₹</b>	Ş	Y S	<b>1</b>	<u>ح</u>	NC.	Š	<u>ک</u> ک	<b>5</b> 5	2	Z,	KC.	<u>త</u>	<u> </u>	5	Ş	۲.	<u> </u>	<b>Ş</b>	Ş	V S	\$ <u>\$</u>				Y CY	۲. و د و	8.08E10	6.45E10	NCA	3.91E11	3. 12E11
, Y	OPEN-CYCLE RECENERATIVE	NCA	1	<b>1</b> 2	<u>Ş</u>	Ş	Ş	<u>ئ</u> ي	<u> </u>	Ş	MCA	5	<u> </u>	2	Ş	KCA	S.	5	<u> </u>	6.36E09	6.36E09	2	5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	1.59E10	MCA	Z)	3.18610	Ž	MCA	4.77E10	4.77E10	7	6.36F10	6.36E10	3.68E11	3.68E11	3.18E11
	YEAR	0861	1985	9862	1980	1985	1990	2000	1980	1990	2000	1980	1985	200	1980	1985	1990	2000	1980	1990	2000	1980	1985	2002	1980	1985	200	1980	1985	1990	2000	1990	1990			1985	2000
	POWER OUTPUT	1.5			٥,٥	:			0.02			30.0			0.09				0.00			250.0			500.0			150.0	_			9.000			5000.0		

ANNUAL FUEL COST ' UNITS: 1960 DOLLARS

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KBINES	HORIZCHTAL AXIS	ő	0	۰ د		00	. 0	0 0		0 (	<b>-</b> -		0	۰ ،			0	<b>.</b>		0	0 0	χÇ	0 0	, 0	NCA	0 0	> 0	NC.	Ž	- 0	NC.	NCA S	NC A
FIND THEBINES	VERTICAL AXIS	ő	-	۰،		00	<u>Ş</u>			<b>∑</b> ′	-		Ş	<b>ğ</b> ¢	-	Š	KCA K	<u>క</u> ్త	¥Ç M	Ž	<u>Ş</u>	į	Y S	Y 2	Ş	S S	V C	K V	NCA	Y C	NCA	NCA	NCA NCA
	PHOTOCHENICAL	NCA	វ្ត	و د	្ត្	ް	Š	<u>5</u>	<b>5</b> 0	NC N	<b>∑</b> 5	<b>်</b>	KCA	NCA NCA	<u> </u>	Ş	¥Ç	Ş Ş	Z Z	NC.	Y S	<u>Ş</u>	Ş	<u>د</u> ک	Š	NCA	V V	Ş	NCA	S S	N.	NCA	NCA NCA
PHOTOVOLTA I CS	ACTIVELY	ő	• •	۰،	• •	00	• •	-		0	0 0		¥C.	- ·	<b>-</b>	Ş	0	- c	ž	0	o c	• ర్జ	<u>ځ</u> د	-	N C	<u>ځ</u>	-	<u>ئ</u>	Ž	Şc	, Y	NC.	NCA NCA
NOTOH-I	TLAT TLATE	ő		۰،		00		0 0		۰.	o c		0	۰ ،	- 0	•	0	o c	NC.	0	0 0	٠ کِ	0 0		NCA .	NCA V	<b>-</b>	, V	NCA	00	, <b>V</b>	NCA	NCA 0
	SOLID	V.	<u> </u>	7.12E02	NC N	NCA 37503		<u>Ş</u>	9.53E03	<b>∑</b>	Y S	1.43504	NCA	NCA	V X	ž	ACA MCA	V C	Ş	NCA	N S	ទ្ធ	NC.	Y S	Ş	NCA	Ž Ž	ַבָּ בַּ	NCA	NCA	<u> </u>	NCA	NCA NCA
FIEL CELLS	MOLTEN CARBONATE	MCA	5 5	<u> </u>	NC.	<u> </u>	NC.	<u>ح</u> کر چ	NC.	¥Ç.	<u> </u>	<u>Ş</u>	MCA	<u>Ş</u> ;	֓֞֞֝֞֞֓֞֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֞֓֓֓֓֓֞֓֓֓֞	NC.	YC.	<u> </u>	KC.	NCA	1.32505	NCA NCA	NCA	2.4/EUS	NCA	NC.	NCA 1,2505	NCA .	NCA.	NCA 4. \$7505	NCA NCA	NCA	NCA 2. 28E06
<u>.</u>	PHOSPHORIC	NCA	9.35802	8.91E02	3.38E03	3.11E03 2.97E03	NCA	1.35E04	1.19E04	NCA	1.87504	1.79E04	S N	4.06E04	3. /4E04	NCA	6.24E04	5.94E04 5.27F04	2	NC.	1.48E05	NCA NCA	NCA	2.63505	NCA	NCA	4.45505	NCA NCA	NC.	5.97E05	NCA NCA	NCA	2.96E06 2.63E06
ORCS		2.32504	2.06E04	2.06E04	1.85504	1.73504	4.19E04	3.95E04 3.69E04	3.69E04	5.54E04	5.22E04	4.88E04	9.24504	8.59504	8.10804	1.36E05	1.27E05	1.20505	2.84E05	2.66E05	2.51E05	5.05805	4.65E05	4.40E05	4.92E05	4.42E05	4.17505	6.26E05	5.64E05	5.37E05	2.55E06	2.28E06	2.17E06 2.17E06
SUM	KINEHVIIC	MCA MCA	9.91202	9.91E02	NCA	3.31203	Ş	NCA 1.33E04	1.33504	S.	NCA 1.99E04	1.99E04		<b>NC</b>	3.97E04	Ş	NCA (350)	6.63E04	KCA	KC KC	1.66E05	NCA	NG.	3.31E05	5	NCA	1 17 FOS	NCA.	₹ N	NCA SOFOS		Š N	V CV
STIRLINGS	PREE P1STON	NCA NCA	9.57E02	9.5/E02	NCA	3. 16E03	NCA	NCA NCA	1.27E04	MCA	ž ž	NCA	NC.	<u> </u>	<u>Ş</u>	NCA NCA	Y S	<u>Ş</u>	NC.	<u>Ş</u>	<u> </u>	NC.	<u> </u>	Š	NCA	S S	<u> </u>	NC.	NC.	S S	NCA	NCA NCA	NCA
	ADIABATIC	NCA	NCA.	<u> </u>	NCA S	<u> </u>	<b>5</b>	<u> </u>	NCA	<u>Ş</u>	<u> </u>	Y)	<u>5</u>	V C	<u> </u>	KC KC	Ş i	្ត្	Ş	NC.	1. 22E05	AC.	1504 7, 4, 1505	2.41E05	5	NC.	3.58805	NCA.	NC.	4.72E05	V. / LEUS	NCA	2. 24E06 2. 24E06
DIESELS	TURBO-	NCA	Š	4.20E03	3.92E03	3. 73E03	1.56504	1.38804	1.38504	2.30504	2.04E04	2.04E04	4.44804	3 93504	3.93504	7.22E04	6. 72504	6.41E04	1.73£05	1.61E05	1.53505	3.35505	3, 13505	2.97E05	4.95E05	4.60E05	4.39505	6.52E05	6.08E05	5.78E05	3.06E06	2.84E06	2.72E06 2.72E06
	COMPONDED TURBO-	NCA	Y.	<u> </u>	<b>5</b>	<b>5</b> 5	<b>5</b>	<b>Ş</b> <u>Ş</u>	MCA	<u></u>	<u> </u>	MCA	KC.	<u>ح</u>	Ž Ž	<u>ځ</u>	5.70E04	5.43504	SZ.	1.42E05	1.36E05	¥CA	2. 73505	2.53E05	Ş	3.90E05	3.72E05	NCA NCA	5.15E05	4. 90E05	NCA	2.41E06	2.30E06 2.30E06
	OPEN-CYCLE NON-RECENERATIVE	NCA NCA	<b>5</b>	5 5	NCA S	<u> </u>	Y S	្ត្	2	<u> </u>	<b>∑</b>	MCA MCA	Y S	5	1 95E04	NCA	Ş.	2.96E04 2.96E04	Ş	NCA	6.57504	8.29504	1.58605	1 21505	1.19505	2.26E05	1.81505	1.55505	2.94E05	2.45E05	6.81E05	1.29E06	1.13506
CAS TURBINES	CACLE	MCA MCA	25	វត្ត	Y S	<u> </u>	Y .	<u> </u>	Ş	Y C	<u> </u>	ర్జ	5	<b>S</b>	<u> </u>	Ş	Y :	<u> </u>	<b>Ş</b>	¥C N	<u>Ş</u>	<u>Ş</u>	V S	\$ \$	Ş	NCA S	V V	K K	4.73E05	4.73E05	3. / /E05	2.29E06	2.29E06 1.83E06
3 <b>:</b>	OBEN-CACIE RECENEBYLIAE	2 <u>2</u>	5	<u> </u>	<u>ک</u> کِر	វ្ទ	<u>ئ</u> پر	<u>د</u> و	¥C.	Y CA	<u>د</u> ک	¥Ç.	KÇ.	<u>ک</u> ک	<b>Ş</b>	<u>ځ</u>	<b>∑</b>	1.57E04	Ş	Š	3.93504	¥CA.	KCA CA	7.85504	5	Ş	1.18505	NCA NCA	1.82E05	1.57505	4.78E05	9.98E05	7.85E05 7.85E05
	YEAR	1980	26	0002	1985	2000	1980	1985	2000	1980	1960	2000	1980	1985	2000	1980	1985	2000	1980	1985	1990	1980	1985	266	1980	1985	1990	1980	1985	1990	0007	1985	1990 2000
	POWER OUTPUT LEVEL, KW	1.5		5.0			20.0			0.06			0.09			100.0			250.0			500.0			750.0			0.0001			5000.0		

AMETER: AMMUAL FUEL COST, 52 UNITS: 1980 DOLLARS

		_			-	-	-	=	-			_	-	_	_				-				_								-					
KB I NES	HORIZOUTAL AXIS	ő	-	•	•		•	0 0	•	•		۰ ،	<b>-</b>	- c			•	۰ ،	<b>-</b>		0 (	<b>-</b>		KÇ.	<b>-</b>		¥Ç4	۰ ،	<b>-</b>	٠ <u>ن</u>	ַבְּ	50		<b>5</b>	NC A	NC.A
VIND THEBINES	VERTICAL AXIS	0	-	• •		-		<u>ځ</u>	<b>-</b>		<u>Ş</u>	•	0	ء د	<u> </u>	  -	•	<b>≨</b>	<u></u>	<b>[</b> 0	NCA NC	<u>ک</u> ک	¥ 5	Š	¥Ç	<u> </u>	YÇ.	NC.	<u>\$</u>	Y S	Z Z	<u> </u>	NCA	NCA S	Š Š	NCA
	РНОТОСИЕМІ СА <b>L</b>	NCA	<u></u>	į 0	<u>ک</u>	<u>خ</u> ک	0	<u>Ş</u>	<u> </u>	-	NC.	<b>Y</b> C	호 -	و د	<u> </u>	<b>∑</b>	Š	Š.	វ្ន	<u></u>	NCA	Ş	ج ج ع	<u>Ş</u>	Ş	Y C	Z,	NCA	NC.	Y S	ב א צ	Š	NCA	NCA K	ž Ž	NC.V
PHOTOVOLTA LCS	VCLIAETA COOFED	ő	<b>-</b>		•	o c		0	-	• •	•	0	0	د پار	<b>[</b> c		•	Ş.	0 0	-	<u>ک</u>	<u> </u>		¥Ç.	Š	90	V.	NC.	0	0 5	ទ្ធផ្ទ	S S	0	NCA	S S	NCA
PHOTON	14.17 314.19	ő	<b>&gt;</b> c	• •	0 0	- c		۰.	<b>-</b> -		٥	0	0	۰ د	> <		۰	0	۰ د	•	NCA	0 0	٥ د	NC.	0	o e	NCA.	Z,	0	0	Y S	ء کٍ	0	NC.	N CA	0
	POLYMER	NCA	<u> </u>	1.89E03	KCA KCA	<u> </u>	6.29E03	Y i	ខ្ទុំខ្	2.53204	YC.	Z,	NCA Tong	). /9E04	§ 5	Ş	NCA	<b>∑</b>	<u>ک</u>	Ş	NCA	Ş	Ş X	NCA	NCA	<u> </u>	Ş	NCA	NCA NCA	Š	Y S	S S	NCA	NCA	S S	NCA
MEL CELLS	MOLTEN CARBONATE	NCA	Y Y	Ş	<b>5</b> 5	Š Š	MCA	Y Ç	\ \ \ \ \ \	Š	¥Ç	<b>5</b>	<b>5</b> 5	<u> </u>	2	Ş	NCA	Z S	<u> </u>	ž Ž	NC.	NCA 1 SEOS	3.16E05	Ş	Ş	4.02E05 6.06E05	Ş	Š	NC.	9. 10E05	Y S	S 2	2.21E06	NCA	V S	6.06E06
<b>E</b>	PHOSPHORIC	NCA	1.52203		NCA 22E03	5.07E03	7.88E03	NCA 12504	2.02E04	3.16504	MCA.	2.25E04	3.04504	4. /3EU3	5.18E04	6.09E04	9.50E04	٠ کارکارکارکارکارکارکارکارکارکارکارکارکارک	4. YOEU4	1.40E05	NCA	ACA A LEOS	im		ZZ.	6.97E05	MCA	YC.	7.24E05	1.05E06	Y Y	4. 22F05	1.39E06	NC.A	NCA 4.82E06	6.97E06
ORCS		2.38E04	3.36E04	5.46E04	1.90E04	2.82E04	4.59E04	4.30804	6.01804	9.78E04	5.69E04	6.66E04	7.94E04	9. 4RF04			2.15E05	1.39505	1.02502		2.91E05	3.40E05	6.65E05	5.18205	5.94E05	1.16506	4.96E05	5.65E05	6.79E05	1.11506	6. 32E05	7. 20E05	1.42E06	2.34E06	3.53506	5.76E06
S. 34	KINEHVIIC	NCA	1.61803	2.63E03	<u>Ş</u>	5.39E03	8.78E03	<u>Ş</u>	2.16E05	3.52E04	SZ.	Ž,	3.24504	0.4/EU4	<u> </u>	1.08E05	1.76E05	NC.	, ACA	4.39E05	NCA	MCA	8.78505	Ş	5	1, 27 ED6	Ŋ.	¥C	Ş.	8.96205	Y S		1.19E06	NC	S	NCA
STIRLINGS	PLESTON PLESTON	MCA	1. 56E03	2.59E03	Ş Ş	5.15E03	8.39E03	<u>ح</u>	<u>د</u> ک	3.36E04	WC.	<u>ک</u>	ָבָ בַּ	5	NCA	NCA	<u>5</u>	<u> </u>	<u>5</u>	Ş	Ž,	<u> </u>	YC.	<u>ک</u>	Ž į	Ş Ş	NCA	Z C	<b>5</b> 5	¥ ¥	S S	Š	NCA	Y Y	Y Y Y	NCA
-	ADIABATIC	NCA	2	KC.	<u> </u>	<u>Ş</u>	NCA E	<u> </u>	<b>Ş</b>	NCA	Y C	<u>Ş</u>	<u> </u>	<u> </u>	Ž	NCA	Ş	<u>ئ</u>	<u> </u>	<u> </u>	¥C¥	YC.	1.33505	NC.	Ş	1.98E05	Š	NCA	3.93505	6.40E05	<u> </u>	S. R. JFOS	9.49E05	¥ :	7.69E05	1.25E06
PIESELS	TURBO-	NCA	Ş	<u>ځ</u>	4.31E03	6.08E03	9.90E03	1.60504	2.25E04	3.66E04	2.36E04	2.74E04	2.32504	4. SSE04	5.27E04	6.40E04	1.04E05	7.41E05	8.38E03	1.70005	1.78E05	2.06E05	4.07E05	3.44E05	3.99E05	4.89E05	5.08E05	5.87E05	7.145.05	1.16506	7 74505	9.42E05	1.53506	3.14506	4.42E06	7.20E06
	COMBONIDED	NCA	5	Ş	<u> </u>	5	MCA	\$ \$	<b>∑</b>	۲ ک	Ž	۲ را د ع	֓֞֝֞֝֓֞֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓	<u>5</u>	<b>∑</b>	MCA	NCA NCA	<u>ځ</u>	7.27E04	1.44E05	5	1.82E05	3 61605	NCA.	3.99E05	4.11E05	NCA S	4.98E05	6.05505	9.85E05	YCY .	7 99805	1. 30E06	NCA	3.75E06	6. 10E06
	OPEN-CYCLE NON-REGENERATIVE	MCA MCA	<u>ځ</u>	<b>5</b>	<b>5</b>	¥C4	Z C	<b>S</b> S	Ş	న్ల	<u>ک</u>	5 2	Ş	Ş	<b>∑</b>	MCA	5.16E04	<u>Ş</u>	§ §	4.82E04	¥Ç	უ .	1.0/603	1.57E05	2.01E05	1.97605	2.25E05	2.87E05	2.95E05	4.81E05	2.94605	1 98505	5.89E05	1.29506	1.84506	3.00೬06
CAS TURBINES	CACLE	NCA NCA	5	<b>5</b>	្ត្	Ş	YC.	<u> </u>	5	KC.	Ş	<b>5</b>	<b>5</b> §	§ 5	Ş	5	¥Ç	<u>ک</u>	<b>S</b> S	5	MCA	Ş Ç	ي و و	Y M	YC.	<u> </u>	\$	MCA	Z)	NCA E	ZZ.	0.04505	1.00506	NCA	2.92F06 3.73F06	4.84E06
S.Y.	OPEN-CYCLE SECENERATIVE	HCA HCA	5	న్ల క	<u> </u>	5	<u>ک</u>	<b>1</b> 2	5	MCA.	YC.	<u> </u>	\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \	<u>ک</u>	WCA.	MCA	Ş	<b>∑</b>	\$ <b>\$</b>	4.16E04	¥Ç.	<b>5</b>	1 00505	Ž.	<b>∑</b>	1.28605	KCA EX	5	1.92E05	3.12E05	Y CA	2 55505	4.16E05	9.09E05	1.28606	2.08E06
	AASY	1980	1980	2000	1980	1990	2000	1980	1990	2000	1980	1985	3 5	3 6	1985	1990	2000	1980	1985	2000	1980	1985	2000	1980	1985	2000	1980	1985	1990	2000	0861	1990	2000	1980	1985	2000
	TEAEL, KW	1.5			٠. د			20.0			0.0			60.0	}			0.001			250.0			500.0			750.0				0.000			5000.0		

PARAMETER: AMNUAL FUEL COST, 102 UNITS: 1980

TOPOST, SERVINESSEE ARRESTORE STRUCTURE PROFESSEE SPRINGERSEE PROFESSEE STRUCTURE, SPRINGERSEE, SOCKESSEE, SOCKES

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TURBINES	HORIZOSTAL AXIS	0 0		0 0	•	•	• •		00	0	0	0 0	<b>.</b>		0	۰ ،	<b>&gt;</b>	•	0	o c		•	Ž	• •	•	Ş		. 0	NCA	NCA.	o c	, Ş	NCA	NCA NCA
T GNIS	VERTICAL	۰ ،	-	-	•	0	<u>د</u> د	0	0 0	, <u>5</u>	§ 0	•	0	<u>ئ</u> ک	و و	•	<u>ک</u>	<u>د</u> ک	§ 0	NCA	<b>Y Y</b>	N N	V.	Y C	NCA NCA	NCA	V S	Y Y	NCA	NCA	V V	NCA	NCA	NCA NCA
	PHOTOCHEMICAL	NCA	\$ <u>\$</u>	•	<u> </u>	ర్జ	ء د	<u> </u>	ర్థం	, <u>{</u>	Š	<b>∑</b>	0	Y S	NC N	S NC	S C	<u> </u>	Ş	¥Ç	V S	<u> </u>	NC.	Ž Ž	<u> </u>	NCA	NCA NCA	V V	Ž V	NC.	Y C	NCA NCA	NCA	NCA NCA
PROTOVOLTAICS	VCT I VELY	0 0	• • —	•	-	0	• •		0 0			•	0	<b>설</b> 드		0	Š	<b>-</b>	• •	Ş	<b>-</b>	. 0	NCA.	<u></u>		NCA	Ş	• •	KC.	NC.	<u>၃</u> ဝ	NC V	NCA	NCA NCA
PROTO	FLAT PLATE	0 0	•		- 0	0			00	, 0	. 0	0	0 0	<b>-</b>		0	0 0	<b>-</b>		NCA NCA	<b>5</b> C	0	NC.	<b>.</b>	. 0	NCA	<b>Y</b> Ç		NCA	NCA	00	, YU	NCA	NCA U
	SOLID SOLID	NCA	۲ ک کو ک	4. 78E03	<u> </u>	MCA	1.59E04 NCA	Z Z	NCA S 8150	MCA.	S S	MCA	9.59E04	Ž Ž	Ş	NCA	<u>ک</u> و	<u> </u>	S S	Ş	Y S	NCA N	Ş	<u>Ş</u> Ş	<u> </u>	NCA	Y C	۲ ک	<u>Ş</u>	NCA	NCA NCA	ָבֻ ל <u>ַ</u>	YC.	NCA NCA
MEL CELLS	HOLTEN CARBONATE	NCA	ŞŞ	Ž,	<u> </u>	NCA.	<u> </u>	NCA	NCA NCA	Z,	NCA	¥C <b>Y</b>	<u>Ş</u>	ע ע ע	¥Ç	¥C¥	<u>Ş</u>	<u> </u>	NC A	¥Ç	NCA C	7. 99E05	NCA	YÇ.	6. 39E05	NCA	Š	NCA 2010	NCA NCA	NCA	NCA C3505	5.57E06 NCA	NCA	NCA 1.53E06
•	PHOSPHORIC	NCA	1.62E03	5.97503	NCA 5 43E03	8.06E03	1.99E04 NCA	2.17E04	3.21E04	NCA NCA	2.83E04	4.83E04	1. 20E06	2 3 5 7 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	9.68504	2.40E05	MCA .	1.00E03	3.59505	¥ر کو	NCA 9 2 5 0 5	3.83E05	Ş	NCA 1250	76E06	NCA	KCA.	1.15506	NCA	NCA	55.00	NCA NCA	NCA	7.66E06 1.76E07
ORCS		2.47E04	5.72E04	1.38E05	1.94E04 2.97E04	4.48E04	1.16E05 4.39E04	6.35E04	9.55204	5.80E04	8.31E04	1.26E05	3.26E05	33505	2.10E05	5.43E05	1.41E05	1000	3.04E05	2.97E05	4.28505	1.68F06	5.28E05	7.48E05	2.93506	. 99E05	7.12E05	1.08E06	3.36E05	0.07E05	39506	36E06	3.65E06	.61E06 .47E07
SUN	KIMEMVLIC	NCA NCA	2.56E03	6.65503	<b>Ş</b> Ş	8.57E03	4. 22E04 NCA	Y N N	3.43E05	Ž	<u>5</u>	5.15E04	1.64505	V C	1.72505	4.45E05	NCA NCA	4. 29E0S	1.11E06	Ş	2 KC			<u>ځ</u>		NCA	Y C	NCA 2 27EOK		NCA	NCA 3.01E06	NCA N	NCA	NCA NCA
STUREINGS	TREE PISTON	NCA	2.48E03	6.07203	<u> </u>				NCA 8. 50504	NCA	NC.		\$ £			<u>ک</u> ز	<u> </u>						Į Į	<u>د</u> ک	NC.		<b>5</b> 5			NCA NCA	S S	NCA	NCA	NCA
	DITABAIDA	NCA					§ §	MCA	<u> </u>	<b>∑</b>	NCA NCA	Ş	S S	<u>ح</u>	NCA	<u>چ</u>	S S	<b>S S</b>	Ş X	NCA NCA	1.30E05	3.36E05	NC.	<b>5</b>	8. 15E05	NC.	Ş	6.25E05	NCA	NCA	9.27505	4.40E06 NCA	NCA	1.22E06 3.16E06
DIESELS	TURBO- CHARGED	NCA NCA	NC.	NCA A 20502	6. 30E03	9.66E03	1.66504	2.33E04	3. 58E04 9. 26E04	2.41E04	3.45E04	5. 29604	4.64E04	6.69E04	1.02E05	2.63505	1.08E05	1.65E05	4.30E05	1.61505	3.98E05	1.03E06	3.50E05	7.69E05	2.00E06	S.18E05	7.40E05	1.14E06	6.82E05		1.49E05	3.20E06	4.57E06	7.03E06 1.82E07
	COMBONIDED	NCA	2	Y C	<u>Ş</u>	<b>S S</b>	Š	KCA KCA	న్ల స్ట	Ş	NCA	<u>ک</u>	Y (	<u> </u>	NCA	YQ.	2	9.16504	3.64505	Š	2.29F04				1 69506	NCA.	6.27E05	9.54E05	NCA NCA		1.27E06	3. 29E06 NCA	3.88506	5.96E06 1.54E07
	OPEN-CYCLE OPEN-CYCLE	NCA NCA	Ş	<u>ర</u> స్ట్ర	Š	<b>V</b> C	<u> </u>	<u>ځ</u>	<u> </u>	NCA	Z S	S S	S S	5	Ş	1.31E05	<u>ک</u> ک		E05		<u> </u>			2.53E05	3.13503	3.55E05	3.61E05	4.69E05	4.64E05	4.73E05	6.33505	2.04E06	2.08E06	2.92E06 7.59E06
CAS TURBINES	CACLE	NCA NCA	న్ల	ర్జ క	Ş	<u>ک</u> ک	<u> </u>	MCA	S S	٢	NC.	<u>ح</u>	<u> </u>	<u> </u>	Š	<b>∑</b>	<u>5</u>		5	5	V C	స్ట	Ş	S S				<u>خ</u> ک			1.22E06	A. Suscue		5.93E06 1.22E07
S.Y.	OPEN-CYCLE RECENERATIVE	25	5	22	Ş	<u>ئ</u> کِ	<b>5</b>	<u>5</u>	Ş Ş	MCA	Š	Y S	<u> </u>	<u>د</u> ک	NCA	స్త	<u>ئ</u>	4.07E04	1.05E05	NCA	<b>5</b>	2.63E05	¥Ç.	Ž,	5.26805	NC.	Z,	3.05E05	NCA EX	2.91E05	4.05E05			2.03E06 5.26E06
	AASY	1980	96	2000	1985	1990	1980	1985	1990 2000	1980	1985	1990	0007	1985	1990	2000	1980	1990	2000	1980	1985	2000	1980	1985	2000	1980	1985	1990	1980	1985	1990	1980	1985	1990 2000
	LEVEL, KW	1.5			?		20.0			30.0			9	2.0			100.0	_		250.0			500.0			750.0			0.0001			2000.0		

KANKTER: LIPE-CYCLE COST UNITS: 1980 CENTS/LIB

		_		-			_						-					_					_	
BINES	HORIZOHTAL AXIS	21.5	4.0.5	12.6	9.75	9.38	9.15	8.82 9.98	8.43	= 5	8.05	7.51	9.07	7.30	NCA.	7.29	KC. V	7.58	7.29	NCA	NCA 7.29	7.29	NCA	Z Z Z
VIND TURBINES	VERTICAL	21.5 19.3	18.0	12.6	2 6 6 2 7 8 6	9.38	9.15	8.82 NCA	<u>ي</u> و	8.11	<b>5</b>	7.52	<u> </u>	NCA NCA	NCA.	S S	Š Š	NC.	្ត្	NC.	V S	NCA NCA	NCA S	S S S
	PHOTOCHEMICAL	NCA NCA	135.0 NGA	135.0	<u> </u>	15. 5 15. 5	<u>5</u> 5	133.6 NCA	NCA NCA	Ŋ.	<u> </u>	స్ట్ర స్ట్ర	న్ల స్ట	NCA NCA	<b>5</b>	<u> </u>	క్ష క్ష	Y S	K V	NCA	<u> </u>	NCA	Š Š	S S S
PHOTOVOLTAICS	ACTIVELY COOLED	269.0	196.1 268.5	196.2	269.3	196.1	231.1	193.7 NCA	231.1	194.3	236.8	193.2	NCA 230.8	193.5	NCA	196.2	196.2 NCA	<u>چ</u>	194.4	5	S S	193.2	NC.	<u> </u>
PHOTOVO	TAIT STAIT	185.2 159.0	135.0	135.3	159.0	135.3	158.6	133.6	158.9	133.8	159.0	134.0	NCA 158.9	133.8	NCA	133.6	133.6 NCA	NCA.	134.0	NCA	NCA 134.0	134.0	NCA	NCA NCA 133.6
	SOLID	NCA NCA NCA	3.56 NCA	3.56	ర్ల స్టర్ట	3.57 NCA	రైస్ట	3.57 NG	NCA NCA	NC.	<u> </u>	ភ្នំ ភ្នំ	<u> </u>	N C	Ş	<u> </u>	Š Š	NCA	<u> </u>	NC.	Y S	NCA	NCA	S S S
FUEL CELLS	HOLTEN	NCA NCA	<b>5</b> 5 5	22	វ្មវ្	<b>5</b> 5	Z Z	<b>5</b>	NCA NCA	Y C	<u> </u>	<u>ک</u> کِ	<u> </u>	4.02	Z.	3.37	NCA	Y S	2.94	NCA	S S	2.93	NCA	NCA 2.93
<u>.</u>	VCID EHOSEHOKIC	NCA 5.40	3.91 NGA 5.61	3.91	5.41	3.92 NCA	5.41	3.93 NCA	5.41	3.93	S. 13	3.55	Ž Ž	4.25	NC.	3.78	NCA NCA	NCA 2	3.33	NC.	3.83	3.31	V S	3.43
ORCS		85.3 81.0 75.9	22.8	7.0.5	7.01	10.7	10.1	9.46 8.91	9.32	7.88	7.40	7.02	6.25	5.92	26.5	5.25	4.05	3.69	3.51	3.91	3.43	3.43	3.45	3.0%
SSNI	KINENVIIC	NCA NCA 38	4.38 NCA	4.39	\$ \$2°	4.13 NCA	Ž8.	7.08 NCA	NCA 4.03	4.03	<u> </u>	2.03	<u> </u>	4°.04	NCA	£6.	S S	MCA.	2.83	NCA	V V	2.83	NCA	S S S
STIRLINGS	PLEE PISTON	NCA NCA 2,2	4.26 MCA	4.23	<u> </u>	3.97 NCA	NC.	S S	Y Y	N CA	2	<u> </u>	រ្តីភ្ន	Ž Ž	S S	Ş	Ş	<u>Ş</u> Ş	ŞŞ	NCA	Y S	NCA	V Ç	NCA NCA
_	DITABATICA.	NCA NCA NCA	NC A	<b>5 5 5</b>	ទ្ធស្ន	NCA NCA	NCA NCA	S S	Y Y	NCA NCA	S S	<b>5</b> 5	<u> </u>	4.69	Y.	4.42	Ş	<u>ي</u>	4.25	Š	NCA 4, 1,7	4.17	NCA	3.68 3.68 3.68
DIESELS	TURBO- CHARGED	NCA NCA NCA	NCA 5.28 4.97	48.4 25.03 20.03	4.75	4.65 5.06	4.68	5.16	4.88	4.82 5.42	5.15	5.13	4.77	4.73	4.77	4.47	4.64	4.38 3.38	4.34	4.54	4.25	4.25	3.86	3.81
	COMPOUNDED  TURBO-	NCA NCA NCA	្តី	222	<u> </u>	<u> </u>	<b>5</b> 5	<b>5</b> 5	Ž Ž Ž	NC.		5.60 5.60	٠ ۲ ک	5.22	Y.	\$76 \$76	ి ఫై	4.52	4.57	5	4.42	4.45	۲ ۲	3.88
	OPEN-CYCLE NON-RECENERATIVE	NCA NCA NCA	<u> </u>	<u> </u>	វុទ្ធ	5 S	្ត ស្ត្រី ស្ត្រី	<b>S S S</b>	<u> </u>	2.37	<b>Ş</b> Ş	2.15 2.15	<b>5</b> 5	1.86	1.27	1.68	1.20	1.97	 	1.15	0.3	1.64	0.95	34.
CAS TURBINES	CACEE	NCA NCA NCA	<b>ភ្</b> ភ្ន ភ្ន	Y Y	រដ្ឋ	2 Z	្ត <u>ភ</u> ្ន	<u> </u>	<b>5</b> 5	Y C	5	្ត <u>ភ</u> ្ន	<u> </u>	5 5 2 2	5	55	្ត្	Y S	<u> </u>	NCA.	2.90	2.38	NCA.	2.71
	MECENERATIVE OPEN-CYCLE	Y Y Y	<u> </u>	<b>5</b> 5 5	5 5	۲ ک ۱۹ ۲	<b>វ</b> ្ត	5 ភ្ន	<u>ح</u> کے <u>ب</u>	5	រុត្ត	1.42	2 2	1.31	Ž.	ş <sup>%</sup> .	1. 2 1. 2	<b>5</b>	1.21	Ş	.32	1.18	0.74	1.07
	AASY	1980 1985 1990	2000 1980	2000	1985	2000 1980	1985 1990	2000 1980	1985	2000	1985	2000 2000	1980	1990	1980	1986	1980	1985	2000	1980	1985	2000	1980	1990
	POWER OUTFUT	1.5	5.0	9	9.07	30.0		0.09			2.2		250.0		500.0		750.0		**	1000.0			2000.0	

and subject makes and allower. There's expression subjects are subject, subjects, respected areaster.

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IKBINES	HORIZONTAL AXIS	21.5	18.4	25.0	13.2	12.6	1.4	\$ \$	9.38	10.8	9.15	8.82	9.98	8.43		9.57	8.05	7.51	9.07	7.59	2	7.30	7.30 \$7.30	7.30 7.58 7.58	7.30 NCA 7.58 7.29	7.30 NCA 7.58 7.29 NCA	7.30 NGA 7.29 7.29 7.29 NGA 7.58	7.30 NCA 7.29 NCA 7.29	7.30 NGA 7.29 7.29 NGA 7.29 7.29	7.30 NGA 7.29 7.29 7.29 7.29 7.29	7.30 NCA 7.29 7.29 NCA 7.29 7.29 NCA NCA	7.30 NCA 7.58 7.29 7.29 7.29 7.29 7.29 7.29 7.29	7.30 MCA 7.29 7.29 7.29 NCA NCA NCA NCA NCA NCA NCA NCA NCA NCA
L GNIV	VERTICAL AXIS	21.5	18.4	15.0	13.2	12.6	Ž	9.75	9.38	MCA	9.13	8.82	5	Y ,	= =	<u>₹</u>	Y S	§ 7	Ş	2	į	<u>ქ</u>	స్ట్రే స్ట్ర	\$ \$ \$ \$	5 5 5 5 5 2 2 2 5 2 2		C V V V V V V V V V V V V V V V V V V V			<b>5</b> 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	<u> </u>		
	РНОТОСИЕМІ СА <b>Г</b>	NCA NCA	Ž,	<u></u>	Š	135.3	Y C	<u> </u>	135.3	Ş	<u>Ş</u>	3.6	NCA	NCA NCA	<u> </u>	<b>V</b> C <b>V</b>	2	<u>د</u> کو	Ş X	<b>5</b>	۲ رو د ع		ŞŞ	វិទ្ធិទី		\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	\$ \$ \$ \$ \$ \$ \$ \$ \$				\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$		
PHOTOVOLTAICS	ACTIVELY	269.0	196.1	268.5	230.7	196.2	269.3	196.1	196.1	269.4	231.1	193.7	NC.	231.1	194.3	Ş	230.8	193.2	NC.	230.8	193.5		MC.	NG AC	NCA NCA 196.2	NCA NCA 196.2 196.2 NCA	NGA 196.2 NGA NGA	NCA NCA 196.2 196.2 NCA NCA	NGA NGA 196.2 196.2 NGA NGA 194.4	MCA 196.2 196.2 MCA MCA 194.4 194.4	NCA 196.2 196.2 NCA 194.4 194.4 NCA NCA	NCA 196.2 196.2 196.2 NCA 194.4 194.4 NCA NCA 193.2	NCA NCA NCA NCA NCA NCA NCA NCA NCA NCA
PHOTOV	FLAT PLATE	185.2 159.0	135.0	185.6	158.9	135.3	185.7	135.3	135.3	185.6	158.9	133.6	185.8	158.9	133.8	185.8	159.0	134.0	Ş	158.9	133.8		ş	158.9	158.9	158.9 133.6 133.6 NGA	158.9 133.6 133.6 NGA NGA	138.9 133.6 133.6 NGA NGA	158.9 133.6 133.6 NGA NGA 134.0	158.9 133.6 133.6 133.6 134.0 134.0	158.9 133.6 133.6 133.6 134.0 134.0	133.6 133.6 133.6 133.6 134.0 134.0 134.0	158.9 133.6 133.6 133.6 134.0 134.0 134.0 134.0
	SOLID	NCA NCA	NCA ,	ς χ.	NCA NCA	4.82	NCA	N S	4.83	NC.	Y CX	4.84	₹ V	NCA NCA	ŞŞ	NC.	<u>Ş</u>	<u>چ</u> کٍ	NCA	Z S	<u> </u>	NCA		S S	ŽŽŽ Ž	\$ \$ \$ \$	V V V V	N N N N N N N N N N N N N N N N N N N	SO S				<b>552 552 552 5</b> 52 553 553 553 553 553 553 553 553 553 5
MEL CELLS	HOLTEN CARBONATE	NCA	KC	Ş	<u>ح</u>	<u> </u>	Z Z	<u> </u>	<b>K</b> Ç	<u>ک</u> ک	<u> </u>	NCA.	YC.	<u> </u>	<u>چ</u> ک	NCA	NC.	<u>خ</u> ک	NCA	Ş,	.4.4	MCA	452	5	4.69	4.69 4.15 NGA	4.69 4.15 NGA NGA	4.69 4.15 NGA NGA NGA	4.69 4.15 NGA NGA NGA 15	4 . 69 4 . 15 4 . 15 MGA MGA MGA MGA	4.15 4.15 MGA MGA MGA MGA MGA MGA MGA MGA MGA MGA	4.15 MCA NCA NCA NCA NCA NCA NCA NCA NCA NCA	4 699 4 15 6 15 8 64 8 64 8 64 8 64 8 64 8 64 8 64 8 64
<u> </u>	PHOSPHORIC	NCA 7.19	6.20	2	7.21	5.50	NCA 7.21	6.17	5.50	٠ ٢	6.19	5.51	<u>ځ</u>	77.7	5.52	<u>ک</u>	6.79	2.93	NC.	<u>ر</u> ک	18.4	<u>Ş</u>	5		5.36 4.71	5.36 4.71 NCA	4.71 NCA NCA	5.36 4.71 NCA NCA 5.37	5.36 4.71 NCA NCA 5.37 4.71	5.36 K.71 K.71 5.37 K.71 K.71	5.36 4.71 NCA 8.37 5.37 6.71 NCA 8.40	5.36 NCA NCA 5.37 4.71 NCA NCA 5.40	5.3 6.71 6.71 8.37 8.40 8.40 8.40 8.40
ORCS		127 120	61	33.2	31.6	29.7	17.4	15.4	15.4	15.6	13.8	13.8	13.0	12.1		11.5	9.0	10.2	9.6	80.0	9.6	8.65	9.8	3	7.60	7.60 5.80	7.60 5.80 5.26	5.80 5.26 5.00	5.26	2.5.8 2.5.8 3.5.8 5.5.8 5.58	7.60 5.80 5.26 5.00 5.00 5.08	7.60 5.78 5.78 5.00 5.00 6.86 8.88	7.60 5.80 5.80 5.80 5.80 6.86 7.86 8.86 8.86
INCS	KINEWVIIC	NCA NCA	6.14	: <u>5</u>	YCY .	6.15	<b>5</b> 5	5.91 16.5	5.91	<u>Ş</u>	Ž .	5.83	Ş	<b>∑</b> {	. s.	Ş	Į,	8.6	5	<b>₹</b>	5.81	MCA	5	5.74		2	2 Z	222	NCA NCA NCA 1.02	7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7	4.02 NGA NGA NGA NGA NGA	4.02 4.02 NGA NGA NGA 1.03	7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7
STIKL	MOT219	NCA NCA	5.96 8.8	χς. M	خ <u>چ</u>	5.91	ŽŽ	<u> </u>	2.66	<u>ک</u>	<u> </u>	<b>∑</b>	<u>ک</u>	<u> </u>	₹	<u>ک</u>	<u> </u>	Ş	Ş.	<u> </u>	Y)	<u>خ</u>	<b>S</b> S	Ş	MCA		NC.	222	2222	\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$			<b>ក្ខុក្ខុក្ខុក្</b> ក្
	DITABAIGA	NCA	<u> </u>	Ş	<u> </u>	5	ភ្នំ ភ្នំ	<u>Ş</u>	Ş	Ž	រ្ត្	¥Ç	<u>5</u>	<b>S S</b>	<b>≨</b>	<b>∑</b>	<u>Ş</u> Ş	<u> </u>	Ş	<u>ي</u> و	5.99	MCA	₹;	5.71	MCA		Ş	₹.	5.53 5.53	5.53 5.53 804 804	8.53 5.53 5.53 8.64 8.64	NGA 5.53 5.53 NGA NGA 5.43 5.43	8.53 5.53 5.53 NCA 5.43 5.43
DIESELS	TURBO- CHARGED	NCA	స్ట్ర స్ట్ర	7.52	6.83	6.83	7.13	6.49	6.49	7.10	6.50	6.50	7.13	6.56	6.56	7.34	6.94 84	. 8.	6.88	6.49	6.44	6.55	9 50	98.	6.40	60	20.0	2.30	5.90	5.90 5.90 5.29 5.94	5.90 5.90 5.94 5.79	5.90 5.90 5.79 5.79	5.29 5.29 5.29 5.79 5.73
	TURBO-	NCA	<b>5</b> 5	Ž	5 5	5	<u> </u>	Ş	NCA E	<u>ئ</u> د	រុ	MCA	<u>Ş</u>	<u> </u>	<b>5</b>	5	7.02	. 6. . 6.	<b>∑</b>	99.9	6.67	NCA	6.24	6.10	Ş	20.5	7.21	5.89	5.89	5.89 5.89 5.79	5.89 5.79 5.76	5.89 5.89 5.79 5.76	5.78 5.78 5.76 5.76
	NON-RECENERATIVE	NCA NCA	វ្ន	Ž,	5 5	<b>∑</b>	<u> </u>	5	<u>5</u>	វ្	5	MCA.	<b>5</b> 5	<b>1</b>	3.24	<b>5</b>	<u>ک</u> ک	2.94	¥Ç	<u>ئ</u> ر	2.56	1.71	2.92	2.32	1.62	2.77		2.29	2.29	2.29 2.29 1.57	2.29 2.29 1.57 2.69 2.29	2.29 2.29 1.57 2.69 2.29	2.29 2.29 2.29 2.29 1.32
TURBINES	CACLE	VOM VOM	ភ្នំ ភ្ន	2	<u> </u>	MCA	ភ្ន	5	<u>5</u>	្ត	វត្ត	5	<b>5</b>	<b>S</b>	§ 5	2	<u>ک</u>	្ត្	2	2	រុ	Ş	<b>5</b>	<b>1</b>	Ş	<b>H</b> CA		<u>ا</u>	<u> </u>	2	MCA MCA 1.16 4.16	MCA MCA MCA 4.16 3.39	6.16 6.16 3.39 6.20 7.00 9.30 9.30
S.Y.	DPEN-CYCLE	25	ថ្ន	Ž	<u> </u>	5	<u> </u>	<b>5</b>	<b>Y</b>	<b>5</b>	រុ	<b>5</b>	<u>5</u>	<b>5 5</b>	្ត	<u>5</u>	<b>5</b>	<b>5 3</b>	5	<b>5</b>	1.73	Z,	<u>ځ</u>	3.9	Ş	<u>Ş</u>		1.62	1.62	1.62 1.62 ICA	1.62 1.62 1.80 1.80	1.62 1.80 1.60 1.60	1.62 1.80 1.60 1.60 1.00
	YEAR	1980 1985	1990 2000 2000	1980	1985	2000	1980	96	2000	0867	1980	2000	1980	1985	2000	1980	1985	2000	1980	1985	2000	1980	1985	2000	1980	1985		1990	2000	2000 1980 1980	1990 2000 1980 1985	1990 2000 1980 1985 1990 2000	1990 2000 1980 1990 2000 1980
	FOWER OUTFUT LEVEL, KW	1.5		5.0		_	20.0			8			9 0.0			100.0			250.0			0.005			750.0				9	1000.0	1000.0	1000.0	1000.0

PANAMSTER: LIFE-CYCLE COSTS, 10% UNITS: 1980 CENTS/kWh

SEPTER PROPERTY. RESOURCES DESCRIPTION CONSIDERAL SUBSTITUTES AMANDICAL RESOURCES DESCRIPTION CONTRACTORS.

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TURBINES	HORIZONTAL AXIS	21.5	19.7	18.4	15.0	12.6	12.6	9.75	9.38	9. 38	9.15	8.82	8.82	9.6		8.11	9.57	2.51	7.51	9.07	7.59	7.30	کر ا	7.20	7.29	NC.	7.58	7.29	NCA	NCA	7.29	NC.	NC.	NC A	
WIND TU	VERTICAL	21.5	19.5	18.4	15.0	12.6	12.6	9.75	9.38	9.38	۲ - د د د	8.82	8.82	<u>ک</u> ک	§ = =	8.11	<u>ئ</u>	<u>د</u> ک	7.51	Z N	Ş	Ş	YC.	کے کے کر کے	NC.	NCA	Ž,	\$ 5 2 2	NC.	NCA	N CA	NCA.	NCA	NCA NCA	
	<b>РНОТОСИЕМІСА</b> Е	NCA	<u> </u>	135.0	S S	<u> </u>	135.3	<u> </u>	Ş	135.3	<u>د</u> ک	Ş	133.6	NCA NCA	<u></u>	Ş	Z i	<u>د</u> ک	Ş	NCA	Ş Ş	<u>Ş</u>	Z,	<u> </u>	Z Z	NC.	<u>Ş</u>	<u> </u>	Š	NCA	Ž Ž	Ş	NC.	NCA	
)LTA1CS	ACTIVELY COOLED	269.0	230.9	196.1	268.5	196.2	196.2	269.3 230.8	196.1	1.96.	209.4	193.7	193.7	٠ ٢	1.167	194.3	<u>ک</u>	2.067	193.2	NC.	230.8	193.5	NCA	ξ. Υ .	196.2	Š	Ş	194.4	2	NC.	NCA 191	173.4 NCA	Ş	NCA	
FAOTOVOLTAICS	TAIT	185.2	135.0	135.0	185.6	135.3	135.3	159.0	135.3	135.3	158.9	133.6	133.6	185.5	133.8	133.8	185.8	13%.0	134.0	NCA	158.9	133.8	<u>ک</u>	133.6	133.6	NCA	NCA	34.0	NCA	NCA	134.0	)	Ş	NCA 133.6	
	POLYMER SOLID	NCA	<u> </u>	7.02	<u>5</u> 5	Ş	7.01		NC.	7.0%	\$ \$	Ş	7.04	<u>ک</u> ک	֓֞֞֞֞֓֞֓֞֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֡֓֞֓֓֓֡֓֞֡֓֓֡֓֡֡֡֡֓֞֓֡֓֡֡֡֡֡	NC.	5	ទ្ធ	N S	Ş	NCA NCA	<b>Ş</b>	Ş	<u> </u>	<u> </u>	ZC.	NCA	Y S	<u> </u>	NCA	NCA NCA	אַ אַ אַ	5	V V	
FIEL CELLS	HOLTEN CARBONATE	NCA	S	Ş	<u>5</u> 5	Y.	Ş Ş	<u>Ş</u>	NCA NCA	<u>د</u> د	2	NCA	Š	Ž Š	<u> </u>	NCA	Ž,	<u>ح</u> کے ک	NC S	NCA	NCA 2	6.62	NC.	ACA 0, 4	6.25	XCA.	NCA.	ACA 2,7	Z Z	NC.A	NCA 2,27	77.0 MCA	NCA NCA	NCA 6.25	
E	VCID BHOSBHOWIC	NCA	80.6	8.24	νς 10.7	9.06	8.24 NCA	10.3	9.07	8.24	2 6	90.6	8.24	NCA.		8.24	NCA	9.68	7.39	NCA	YC.	7.23	Z.	V.	7.14	NCA	YCA CA	7.1	Z Y	NCA	8.16	NCA	NC.	8.10	֓֞֝֟֝֟֝֟֝֟֝֟֝֟֟֓֓֓֟֟֓֓֟֟֓֓֟֟֓֓֟֟֓֓֟֟֓֓֟֟
ORCS		861	176	176	51.2	45.6	45.6	25.8	24.1	24.1	22.8	21.3	21.3	7.02	17.7	17.7	17.8	) e s	15.8	14.9	14.0	13.2	13.3	12.3	1.1	8.83	2.99	 	8.47	7.68	7.34	7.17	87.9	6.20	
SUN	KINEWVIIC	NCA	9.19	9.19	<u>5</u> 5	9.21	9.21	<u> </u>	86.98	2	<u> </u>	8.91	8. 9. 26. 9	Š	8. 8. 8.	8.84	<b>5</b>	8. 8. 8. 8.	8.86	<u>Ş</u>	8.87 8.87	8.87	NCA	200 200 200 200 200 200 200 200 200 20	8.80	NCA.	Y S	<u>ء</u>	YS N	Š	کر . ت	NCA	S C	NCA NCA	NA.
STIRL	FREE POTSI9	NCA NCA	8.91	8.91	<u>ح</u> کے ک	800	0.03 Mrs	Ş	<u>ک</u>	0.0	<b>5</b> €	NCA I	<u>ا</u>	្ត្	MCA	<u>ح</u>	<u> </u>	5	NC.	Y CY	<u></u>	NCA MCA	<u>Ş</u>	ŷ	<u>ال</u>	<b>5</b>	<u> </u>	S S	Š	A S	ű V	Y.	NCA	NCA NCA	lar.
	ADIABATIC	NCA	Ş	MCA 101	S S	NCA	<u>خ</u> ک	NC.	Ž Ž	<u>ئ</u> ک	NC.	<u>Ş</u>	<u>Ş</u>	<b>5</b> 5	ర్జ	<u>ჯ</u>	<u>Ş</u>	<b>₹</b>	¥C.	Ş	<u>ک</u> د	8.25	NC.	<b>₹</b>	7.93	Ş	Ž,	2.73	NC.	NC.	7.61	۱۵. ۲۵ ۲۵. ۲۵	V.	6.94	
DIESELS	TURBO-	NCA NCA	Z,	호 <u>`</u>	10.7	10.3	10.7	10.0	79.67	10.6	10.0	9.64	7.00	9.00	9.54	9.59	2.0	9.80	9.80	10.1	9.46	9.19	9.65	8.80	8.80	77.6	6.6	8.61	9.29	8.74	9.46	8.56	8.00	7.78	,
	TURBO-	NCA NCA							<u>ა</u>										9.56				KC.				3.3				8.02			7.11	
	OBEN-CACTE NON-BECENEBYLINE	Ş.Υ. N.	2	<u> </u>	្ត្	<u>5</u>	<b>5</b> 5	S)	<u>ک</u> ک	<u> </u>	<b>∑</b>	<b>∑</b>	<u> </u>	§ §	5	4.74	<b>∑</b>	§ 4	8 8	MCA	ر کور	3.77	2.48	97.6	3.44	2.35	9.16	3.40	2.28	4.05	3.42	7.47	3.49	3.08	
CAS TURBINES	CYCLE	NCA	5	្ត្	រុទ្ធ	Ş	<u>ک</u> ک	Y M	<u>Ş</u>	٠ ا	2	Ž	<u>5</u>	<u> </u>	<u></u>	<b>∑</b>	<u>Ş</u>	§ 5	Ş	Ş	<u>Ş</u>	5	<u>Ş</u>	<u>د</u> ک	KÇ.	MCA	V S	<u>ح</u> کے کے	NCA	6.35	6.35	. Y.	6.03	6.05	
S.E.S.	MEGENERATIVE OPEN-CYCLE	<b>5</b> €	5	Į,	\$ 5 E #	<u>ک</u>	<u> </u>	5	<u>Ş</u>	§ §	Z)	<b>5</b>	<b>≨</b> §	វ្	۲ پر	2	2	§ .	2.57	MCA	۲ ×	2.46	ACA MCA	ج چ چ	2.38	¥Ç.	<u>ა</u>	2.35		2.64	2.32	2.32	2.53	2.22	77.7
	YEAR	1980	1990	2000	1980 2985	1990	2000	1985	0661		1985	1990	2000	1980	1990	2000	1980		2000	1980	1985	2000	1980	1985	2000	1980	1985	2662	1980	1985	1990	1980	1985	1990	2007
	LEVEL, KW	1.5		•	0.6		ç	?		5	?		;	0.0			0.001			250.0			500.0			750.0			0.0001			0.0005	-		1

START-UP TIME	
STA	
PARAMETE	

1711  1711	•			CAS TURBINES			DIESEL		STIRLINGS	N.C.S	ORCS	Ξ.	FIEL CELLS		PHOTOVC	PHOTOVOLTAICS		WIND TURBINES	₽
1990   NCT	LEVEL, KW	AASY		CACEE	OBEN-CACEE NON-SECENERYLIAN	COHEONNDED	TURBO-	ADIABATIC		KINEHVLIC						COOFED VCTIVELY	PHOTOCHEMICAL		VERTICAL AXIS
1990   NEC.	s	980 985	7 5 X	<b>5</b> 2	ZZ MCZ	NCA NCA	<b>5</b> 5	NCA NCA	AC AC	Z Z	20.00	NCA	NCA	<u>5</u> 5	\$	\$	NCA NCA		1.675-01
1985   NCA		066	NCA NCA	<u>Ş</u>	ភ្ន	2	NCA NCA	2	0.25	0.25	2	3	. VO	NCA		· •			1.6/E-01 1.67E-01
1985   NCA		3 8	Ş	§ 5	5	្ន	٠ - ک	<u> </u>	C 5	ς, ς <sub>2</sub>	3 8	0 Y	<u> </u>	Ç Ç	~ ~	'n			1.67E-01 1.67E-01
1990   NCA   NCA   NCA   12   NCA   0.25   30 0.25   30 0.40   NCA   NCA   1990   NCA		985	Ş	<u>Ş</u>	<u>چ</u>	S ;	7	NCA.	YC.	<b>Y</b>	8	9	NC.	Ž	. ~	· ~			1.67E-01
1980   NCA		<b>2</b> 2	<u> </u>	<u> </u>	5 5 2 2	<b>5</b> 5	، ۲	<u> </u>	2.5	0.25	္က န	9 9	Š	Ş,	<b>د</b> د	<u>۰</u>			1.67E-01
1985   NCA	_	3 8	2	<u> </u>	<b>∑</b>	Ş	, ~	<b>≨</b>	NC V	) Z	3 5	<b>2</b> 5	<u> </u>	ָבָּי לְּ	n v	^ "			1.67E-01
1990   NCA	_	985	NC.	NCA MC	Ş	MCA	7	Ş	Ş	<u>Ş</u>	2 8	£ 54	YC.	<u> </u>		۰ ۰	្ត្		§ 8
1985   W.C.A.   W.C		990	Ž,	<b>Y</b>	<b>≨</b> §	న్త క్ల	7	<u>Ş</u>	YÇ M	0.25	8	45	NC.	<b>₹</b>	<b>ب</b>	\$	<b>∑</b>		8:
1995   NCA		8	¥ ¥	Y CA	<u>ا</u> ا	<u> </u>	~ ~	S S	0.25	0.25	8	54 5	Ş Ş	9	<b>ب</b> د	<b>'</b>	<b>~</b> }		8:
1990   NCA	_	985	<u> </u>	<b>5</b> 5	<u> </u>	<u> </u>	۰,	§ 5	\$ \$	<u>د</u> ک	8 8	<u>Ş</u> Ş	<u> </u>	<b>5</b> 5	^ "	· ·	<u> </u>		<u>ئ</u> و
1990   NCA		986	Z)	5	<u>ح</u>	5	7 7	Š	NC.	<b>1</b>	3 8	3 9	<u>Ş</u>	֓֞֞֞֓֓֓֓֓֞֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓	^ i^	^ ~	<u> </u>		8 8
1995   NICA	_	8	Ž	\$	<u>Ş</u>	¥Ç¥	~	MCA	NCA	0.25	2 8	3 3	NC.	07	, 10	· •	·		3 8
1985   NCA		980	NCA.	<b>∑</b>	<u> </u>	<u>ک</u>	7	<u>ځ</u>	<u>ح</u>	NC.	2 8	<b>₹</b>	¥C¥	Ş	~	¥Ç.	NCA.		<b>∑</b>
1990   NCA		985	Ž,	<u>ა</u>	<b>5</b>	<u> </u>	~ 6	Y C	\ \ \ \ \	Ş	8	3	Ş Ş	<b>₹</b>	ς,	S	<u>Ş</u>		<b>≨</b>
1980   NICA		2 8	\$ <u>\$</u>	<u> </u>	§ °	្ត្	, ,	§ §	<u>Ş</u>	0.25	8 8	2 5	ָלֵי עַ	Ž	<b>ر</b> د	· ·	<u> </u>		5.00
1985   NCA		980	Ş	<b>Ş</b>	? 5	<b>Ş</b>	. 2	<u>5</u>	Ş	KCA.	2 8	Q <b>∑</b>	Ş	<u> </u>		^ ჯ	<u> </u>		8.¥
1990   1.0   NCA   1.0   2   2   NCA   NCA   NCA   0.25   30   120   NCA   N	_	985	MCA	Y HC	<b>≨</b>	2	2	KC.	NCA	Z,	8	120	NC.	Ş	۰.	٠,	Š		NC.
2000         1.0         NCA         1.0         2         NCA		980	1.0	<b>≨</b>	1.0	7 1	7	<b>S</b>	Ž į	0.25	8	120	NC.	NCA	2	2			<b>Ş</b>
1985   NCA		000	0.5	<u>Ş</u>	0.5	~ 5	7 (	Y S	<u>د</u> ک	0.25	2 2	120	<u>ک</u> ک	NC.	٠,	ر د د			2.8
1990   1.0   10.0   1.0   2   2   2   10.0   1.0   1.0   1.0   2   2   2   1.0   1		9 6	<b>5</b> 5	<b>5</b> 5	<b>5</b> 5	Į,	, ,	Ş	Ş	<b>S</b> 2	2 8	۲ کے 2 کے	¥ Ç	<b>Y Y</b>	<u>.</u>	§ .			٠ د د
1.0   NCA   1.0	-	0 0	§ .	<b>5 5</b>	§ (	. ~	, ~	§ ^	Ş	ج بر ا	2 2	¥ 5	¥ 5	\$ 5 2	n v	n v		_	<u> </u>
1980   NCA   NCA   1.0   NCA   1.0   NCA		000	-	<b>Ş</b>		2	2	. ~	NCA	0.25	2 8	120	98	S S	, 10	. ~			V.
1965   NCA   NCA   NCA   1.0   2   2   NCA   NCA   NCA   30   NCA   NCA   NCA   NCA   1.0   1.	_	980	Ş	¥C¥		MCA	2	MCA	Š	MCA	8	NC.	NCA	NCA	NCA	χÇ			NC.
1990   1.0   NCA   1.0   2   2   2   NCA   0.25   30   150   180   NCA   1.0   1.0   NCA   1.0   2   2   2   NCA   0.25   30   150   180   NCA   1900   NCA   1.0   2   2   2   NCA   NCA   NCA   NCA   1.0   2   2   2   NCA   NCA   30   NCA   NCA   NCA   NCA   1.0   2   2   2   NCA   NCA   30   150   NCA	_	985	5	¥C¥	1:0	7	2	Ş	Y C	Ş	8	NCA	Ş	NCA	5	NC.			NC.
2000         1.0         MCA         1.0         2         2         2         2         30         150         180         NCA         180         NCA         180         NCA         NCA         190         180         NCA         180         NCA         NCA         190         150         180         NCA         NCA         NCA         190         170         NCA         170         NCA		26	1.0	<b>∑</b>	1.0	7	7	7	S S	0.25	20	150	180	NCA	2	2			NC N
1986   NCA   NCA   1.0   NCA   2   NCA   NCA   NCA   30   NCA	_	8	0.1	<b>∑</b>	1.0	7	7	7	\$ 1	0.25	8	150	180	YCY N	٠.	5			NCA
1985   NCA   NCA   1.0   2   2   NCA   NCA   30   NCA   NC		980	2	Ş	1.0	<b>₫</b> ,	7	KCA K	٠ ا	NCA NCA	8	VCA.	NC.	WCA	NCA	సై		_	NC.
1990   1.0   NCA   1.0   2   2   2   NCA   1.0		985	₹ Ž	Y E	0.1	, ,	7 (	<u>ح</u>	<b>5</b> 5	¥C¥	<u>۾</u>	Y C	NC.	NCA N	VCA.	Y.			Ž
2000         1.0         2         2         2         2         0.25         30         150         200         NCA         NCA         NCA         190         150		8	0.1	<b>5</b>	1.0	7 (	~ •	7 (	٠ ا	Ž,	2 2	150	Y S	S :	v .	, .			NCA S
1985 1.0 1.0 2 2 2 NCA NCA 30 NCA NCA NCA 1.0 NCA 1.0 1.0 2 2 2 NCA NCA 1.0 NCA NCA 1.0 NCA 1.0 1.0 2 2 2 NCA NCA 1.0 NCA 1.0 1.0 2 2 2 NCA NCA 1.0 NC		8	0.	Ş	0.1	7	,	7	5 5	0.25	2 2	000	200	Y CY	٠,	^ ;			Z S
1990 1.0 1.0 1.0 2 2 2 NGA NGA 30 180 NGA NGA 1990 1.0 1.0 1.0 2 2 2 NGA NGA 30 180 NGA NGA 1980 1.0 1.0 1.0 2 2 2 2 NGA NGA 30 180 NGA NGA 1980 1.0 1.0 1.0 2 2 2 2 NGA	_	200	<b>5</b> .	<u>Ş</u> (	0.1	٤,		្ត្	Ž.	Ş	2 5	\$ \$	S S	Y 5	Y (Y	5 5			ַבְּ בַּ
2000 1.0 1.0 1.0 2 2 2 2 2 180 200 NCA 1980 1.0 1.0 1.0 2 2 2 2 2 NCA NCA NCA 30 NCA		000	2 6			, ,	, .	,	NCA		2 5	180	Z Z	4 Z	ğ	¥ 2			Š
1980 1.0 NCA 1.0 NCA 2 NCA NCA NCA 30 NCA		000	.0			7	- 7	2	NCA	0.25	2 8	180	500	NCA	· ~	2	NCA		NC.
1985 1.0 1.0 1.0 2 2 2 NCA NCA 30 NCA NCA NCA 100 100 100 100 100 100 100 100 100 10	0.000	980	0.1	KCA M	0.1	NC.	2	NCA	NCA	NCA	30	NCA	NCA	NCA	NCA	Ş	NCA		NCA
10 10 10 10 10 10 10 10 10 10 10 10 10 1		1985	1.0	0.1	0.1	2	7	NCA	VCA S	NCA	20	NCA	NCA	NCA	NCA	Ş			NCA
1:0 1:0 1:0 1:0 1:0 1:0 1:0 1:0 1:0 1:0		0661	1.0	1.0	1.0	2	2	2	Y N	NCA	2	180	NCA	NCA	NCA	NCA			NCA

MINUTES	
UNITS:	
T-DOWN TIME	
SHUT-DOM	
ARAMETER:	

TURBO-  COMPOUNDED  CONTROLLE  CO			i.A.	CAS TURBINES			DIESELS		STIRLINGS	SSN	ORCS	Ē	FIEL CELLS		PHOTOVOLTAICS	LTAICS		WIND TU	TUKBINES
1990   NCA	POWER OUTPUT LEVEL, KW	XX3Y			OPEN-CYCLE NON-RECENERATIVE	тикао- сорфонаер		VD1VBV11C		KINEHVLIC		ACID PHOSPHORIC		POLYHER SOLID	FLAT PLATE	ACTIVELY COOLED	- PHOTOCHEMICAL	VERTICAL AXIS	HOR IZONTAL AXIS
1995   NEA   NEA   NEA   NEA   NEA   NEA   NEA   138-02   138-02   139-02	┡	1980	Y.S.	NCA MCA	NCA NCA	NCA	Y S	NCA NCA	V S	⊢	25	NCA 30	NCA NCA	S			NCA	1.67E-01	1.67E-01
1960   HCA   HCA   HCA   HCA   HCA   HCA   133E-02   135E-02   1		1990	វ្	្ត្	ర్జ	¥ 5	5 S				2 2	3 8	S S	ŞŞ	-		<u> </u>	1.6/E-01	1.67E-01
1950   NCA		2000	ర్జ	MCA	Ş		Ş	_		_	2 8	2 8	Ş	8			-	1.67E-01	1.67E-01
1990   NCA   NCA   NCA   1.318-02   NCA   8.318-02   1.318-02		0861	Y S	<u>5</u>	<u>ح</u>		3.33E-02	W C	Y C	_	22	ర్జ	S S	N S	<b>-</b>	٦.	<b>5</b> 5	1.67E-01	1.67E-01
1980   NCA   NCA   NCA   1.31E-02   NCA   1.31E-02   NCA		1980	<u> </u>	្ត្	<u>5</u>		3. 33E-02	<u></u>	1. 33E-02 B		2 2	2 8	វ្ន	\$ <u>\$</u>			វ្ន	1.67E-01	1.675-01
1980   NCA		2000	Ş	MCA	Ş		3.338-02	NC A	1.33E-02 B		2 2	8	MCA.	8		. –	-	1.67E-01	1.676-01
1985   NCA   NCA   1338-02   NCA   NCA   1338-02   NCA   N	20.0	1980	ž ž	S C	<u> </u>		3.33E-02	Y Z	<b>5</b> 5	_	2 2	Ş	Y S	<u>خ</u> ک			<u>Ş</u> Ş	၌ န	88
2000         HCA         HCA <th></th> <th>1980</th> <th>រ្ម័</th> <th><u> </u></th> <th><b>Ş</b></th> <th></th> <th>3. 33E-02</th> <th><u>ځ</u></th> <th><u>ရ</u></th> <th></th> <th> R R</th> <th> R R</th> <th>N S</th> <th><u> </u></th> <th></th> <th></th> <th>Z Z</th> <th>8 8</th> <th>8 8</th>		1980	រ្ម័	<u> </u>	<b>Ş</b>		3. 33E-02	<u>ځ</u>	<u>ရ</u>		 R R	 R R	N S	<u> </u>			Z Z	8 8	8 8
1985   WCA   WCA   WCA   3.33E-02   WCA	_	2000	MCA.	2	<b>5</b>		3.33E-02	ZC.	1.33E-02 B	_	8	8 ;	Š	8	_	-	-	8:	8:
1990   NCA   NCA   NCA   1.31E-02   NCA   NCA   1.31E-02   NCA   NCA   1.31E-02   NCA   NCA   1.31E-02   NCA   NCA   NCA   NCA   1.31E-02   NCA   NC	30.0	1980	Y C	Y S	Ž		3.33E-02	S S	Y C	_	2 2	<u></u>	Ž Š	S S			Y S	<u> </u>	8.8
Name		1985	្ត្	<u> </u>	<u>ح</u>		3.33E-02		 	_	2 2	2 8	Z Z	בי אַנ			<u> </u>	8 8	8
1980   NCA   NCA   NCA   3.318-02   NCA		2000	<b>Ş</b>	ర్జ	¥Ç		3.33E-02	KC.			2 8	8	Ş	8	-	_	-	8:	1.00
1955         NCA         NCA <th>0.09</th> <th>1980</th> <th>WC.</th> <th><b>∑</b></th> <th><u>S</u></th> <th></th> <th>3. 33E-02</th> <th><u>₹</u></th> <th></th> <th>_</th> <th>2</th> <th>NCA</th> <th>NCA</th> <th>Z,</th> <th>_</th> <th>MCA</th> <th>Ş</th> <th>Š</th> <th>8:8</th>	0.09	1980	WC.	<b>∑</b>	<u>S</u>		3. 33E-02	<u>₹</u>		_	2	NCA	NCA	Z,	_	MCA	Ş	Š	8:8
1990   NCA   NCA   NCA   3.33E-02   NCA   NCA   8.32E-02   30   30   NCA   NCA   NCA   1990   NCA   NCA   NCA   NCA   1990   NCA   NCA   NCA   NCA   NCA   1990   NCA		1985	<b>₹</b>	<b>∑</b>	<u></u>		3.33E-02	<u>ح</u>		_	200	2 2	<b>V</b>	¥C¥	_		<u>ئ</u> پر	<u>ک</u> و	8.8
1980   NCA   NCA   3.38-02   NCA		1990	5 5	<u> </u>	_ క్ల		3.335-02	ک ک		33E-02	2 8	2 E	5 5 2 8	V V			<u></u> 5	3.6	3.6
1995   NCA   NCA   3.31E-02   3	9	980	2	រ្ទ ភ្ន	) <u>S</u>		3.33E-02	<b>∑</b>		NC.	3 8	Š	NC.	Ş		۲.	MCA	Ş	2.00
1990   2.0   NCA   2.0   3.33E-02   3.35E-02   NCA   NCA   NCA   8.33E-02   3.0   NCA		1985	2	MCA.		3.33E-02	3.33E-02	¥Ç		NCA	2	8	NC.	2	_	_	<b>5</b>	Ž,	2.00
1980 NCA		1990	2.0	<u>ک</u>		3.33E-02	3.33E-02	y y		33E-02	2 8	ج ۾ ۾	¥ 5	S S			<u> </u>	۲ و د	8.8
1985         NCA         NCA <th>0.05</th> <th>1980</th> <th>2 5 2 5</th> <th>5 5</th> <th></th> <th>NCA CA</th> <th>3.33E-02</th> <th>Ş</th> <th></th> <th>NCA</th> <th>28</th> <th>NC S</th> <th>NC S</th> <th>Ş.Ş.</th> <th>. <u>Ş</u></th> <th>.5</th> <th>NC.</th> <th>NCA</th> <th>2.00</th>	0.05	1980	2 5 2 5	5 5		NCA CA	3.33E-02	Ş		NCA	28	NC S	NC S	Ş.Ş.	. <u>Ş</u>	.5	NC.	NCA	2.00
1990         2.0         NGA         2.0         3.38E-02         3.38E-02         NGA         8.31E-02         30.0         60         150         NGA           2000         2.0         NGA         2.0         3.31E-02         3.31E-02         3.31E-02         30.0         60         150         NGA           1980         NGA         1.0         NGA         2.0         3.31E-02         3.31E-02         NGA         NGA         NGA         NGA           1980         NGA         1.0         3.31E-02         3.31E-02         3.31E-02         3.31E-02         3.0         90         180         NGA           1990         2.0         NGA         2.0         3.31E-02		1985	X.	¥Ç		3.33E-02	3.33E-02	MCA		NCA	30.0	Ş	Š	Ş	_	_	Ž	<u>Ş</u>	8.8
1980         NCA         1.0         1.315-02<		1990	2.0	Ž,		3.335-02	3.33E-02 b	.33E-02			0.0	S 5	25 55	<u>ک</u> کٍ			<u> </u>	¥ 5	8.8
1985         NCA         NCA         2.0         3.318-02         3.318-02         NCA         NCA         NCA         1.00         NCA	0.005	1980	¥.5	<u> </u>		XCA.	3.33E-02	NCA UZ			30.0	<u></u>	Ş	NC.	VZ	Ş	స్థ	NCA NCA	NC.
1990         2.0         NGA         2.0         3.316-02		1985	5	MCA		3.33E-02	3.33E-02	ž		•	30.0	NCA	Ş	Š		<u>ځ</u> .	Š	¥ 5	2.00
1980 NCA NCA 2.0 3.312-02 5.312-02 NCA NCA 60.0 NCA NCA 1988 NCA NCA 2.0 3.312-02 5.312-02 NCA NCA 60.0 NCA NCA 1988 NCA NCA 2.0 3.312-02 5.312-02 NCA 8.317-02 60.0 NCA NCA NCA 1980 NCA NCA 2.0 3.312-02 5.312-02 NCA 8.317-02 60.0 90 NCA NCA 1980 NCA NCA 1980 NCA		1990	2.0	<u>Ş</u>		3.335-02	3.33E-02 B	. 33E-02		<b>~</b> ~	0.0	88	081	Š Š			<u> </u>	Ş Ş	88
1990         NCA         NCA <th>0</th> <th>2007</th> <th>2.7</th> <th>Ş</th> <th></th> <th>3.33E-02</th> <th>7 335-02 7</th> <th>70-356 NCA</th> <th></th> <th>•</th> <th>0.09</th> <th>NC Y</th> <th>2</th> <th>Ş</th> <th>SC.</th> <th>Ş</th> <th><b>∑</b></th> <th>Ş</th> <th><b>₹</b></th>	0	2007	2.7	Ş		3.33E-02	7 335-02 7	70-356 NCA		•	0.09	NC Y	2	Ş	SC.	Ş	<b>∑</b>	Ş	<b>₹</b>
1990         2.0         NCA         2.0         3.3E-02	0.00	1985	<b>Ş</b>	Ş		33E-02	3. 33E-02	Υ Σ	NC.	NC.	0.09	NCA	NC.	¥Ç	¥C.	<u>ک</u>	NCA NCA	<b>Ş</b>	8.8
2000         2.0         NGA         2.0         3.38-02         3.38-02         3.38-02         3.38-02         3.38-02         3.38-02         3.38-02         8.38-02         9.0         8.0         8.0         8.0         8.0         8.0         8.0         8.0         8.0         8.0         8.0         8.0         9.0         8.0         9.0         9.0         9.0         9.0         9.0         9.0         9.0         9.0         9.0         8.0         9.0         8.0         9.0         8.0         9.0         8.0         8.0         9.0         8.0         8.0         9.0         8.0         8.0         9.0         8.0         8.0         9.0         8.0         8.0         9.0         8.0         9.0         9.0         9.0         9.0         9.0         9.0         9.0         9.0         9.0         9.0         9.0         9.0         9.0         9.0         9.0         9.0		1990	2.0	NCA NCA	2.0	3.33E-02	3.33E-02	. 33E-02	Y CA	NCA.	0.09	88	YC.	Ş Ş			۲ کے کا کا	ځ <u>ځ</u>	3 8
1986 2.0 2.0 2.0 3.318-02 3.318-02 3.318-02 8.03		2000	2.0	ξ,	2.0	3.33E-02	3.33E-02	. 336-02	¥ 5	. 33E-02	0.09	2 2	28.7	۲ <u>۲</u>	- V	. Š	<u> </u>	Ş V	NCA N
1990 2.0 2.0 2.0 3.38-02 3.38-02 3.338-02 NGA NGA 60.0 120 NGA NGA 1990 2.0 2.0 2.0 3.38-02 3.38-02 NGA NGA 8.38-02 60.0 120 NGA NGA 1990 2.0 2.0 2.0 3.38-02 NGA NGA NGA NGA NGA NGA NGA NGA 1990 2.0 2.0 2.0 2.0 3.38-02 3.38-02 NGA	0.0001	1980	٠ د د	<u></u>	2.0		335-02	5 5	MCA		20.09	NC.	V V	Ž	NCA	NC.	NCA	NCA	NCA
2000         2.0         2.0         2.0         3.38-02		1990	2.0	2.0	2.0		3.33E-02	1.33E-02	KCA.	NC.	0.09	120	SC.	S.		Z,	NCA NCA	NCA NCA	8.8
1980 2.0 NCA 2.0 NCA 3.33E-02 NCA		2000	2.0	2.0	2.0	3. 33E-02	3.33E-02	1.33E-02	Z S	3. 33E-02	0.09	120	500	Ş	:	- ;	۲ را د کا	֝֞֞֞֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓	). (
2.0 2.0 2.0 3.33E-02 3.33E-02 NCA NCA 60.0 150 NCA NCA NCA 2.0 2.0 2.0 3.33E-02 3.33E-02 3.33E-02 NCA NCA 60.0 150 NCA NCA	0.0008	1980	2.0	NCA	2.0	NCA P	3.33E-02	NCA	ج چ د	NC.	0.09	¥ 2.	KCA KCA	Ž	V CV	<u>د</u> ک	֓֞֞֞֝֞֞֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓	¥ ½	\$ \$
0.0 0.1 0.2 0.2 0.2 0.2 0.2 0.2 0.2 0.2 0.2 0.2		1985	2.0	2.0	2.0	3. 33E-02	3. 33E-02	NCA 1. 33 E-02	S S		20.09	150	ž Ž	NCA	- 5 2 2	ŞŞ	NCA	S S	NCA.
2.0 2.0 2.0 3.33E-02 3.33E-02 3.33E-02 NCA NCA 60.0 150 2.0 NEA 1		2000	2.0	2.0	2.0	3.33E-02	3.338-02	1.33E-02	NCA	NCA	0.09	150	240	NCA	-	NCA	NLA	NCA	NCA NCA

		SKS	CAS TURBINES			DIESELS		STIRLINGS	INCS	ORCS	<u>s</u>	PIEL CELLS		PHOTOVOLTAICS	OLTAICS		WIND TERBINES	(B) NES
POWEE, KW	AASY	DPEM-CYCLE	CYCLE	OPEN-CYCLE WON-RECENERATIVE	COPPOUNDED  TURBO-	TURBO- CHARGED	ADIABATIC	FREE PISTON	KINEWVIIC		VCID LHOSEHORIC	HOLTEN	SOLID POLYMER	TAJ? PLATE	ACT LVELY	- РНОТОСИЕЖІСАL	VERTICAL SIXA	HORIZONTAL AXIS
1.5	1980 1985	7) M	NCA NCA	NCA NCA	NCA NCA	NCA NCA	NCA	NCA	NCA NCA	144	NCA 3. 6	NCA NCA	Y Z	1.96E05	2.94E05	N.A.	1.98502	3.96502
	1990	22	రై రై	ర్హ స్ట	Z Z	N C	NCA NCA	7.05	7.05	144	000	. VON	NC.	1.96E05	2.94E05	Ž	1.98602	3.96E02
5.0	1980	2 2	Y CA	Ş Ş	2	1.55E01	2	NCA	Ž,	77	) Y	S O		6.53E05	2.94E05 9.80E05	1.96E05 NCA	1.98E02 7.00E02	~ ~
	1985 1990	<u> </u>	<b>5</b> 5	5 5	ŠŠ	1.55501	<u> </u>	NCA 1.71E01	NCA 1.71E01	144 144	12.0	V V		6.53E05 6.53E05	9.80E05 9.80E05	స్ట్ర స్ట	7.00E02	
20.0	2000	ర్జ స్ట	Y Y	<u> </u>	Y C	1.55E01 4.02E01	S S	1.71E01 NCA	1.71E01 NCA	144	10.0 NCA	NCA NCA	10.0	6.53E05 2.61E06	9.80E05	6.53E05	7.00E02	1.40503
	1985	<b>5</b> 5	V V	Z Z	NCA NCA	4.02E01	Ş Ş	NCA	NCA 4.2501	144	45	V S	_	2.61E06	3.92505	្ត្	5. 15E02	1.03E04
	2000	Ş	<u> </u>	5	Ş	4.02E01	<u> </u>	4.42E01	4.42E01	144	3 9	Š		2.61E06	3.92E05 3.92E05	NCA 2.61E06	5.15E02 5.15E02	1.03E04 1.03E04
30.0	1980	<u> </u>	V V	<u>Ş</u> Ş	<u> </u>	5.24E01 5.24E01	Y Y	NCA NCA	NC S	192	NCA 10	V CV		3.92E06	5.88E06	NCA	NCA NCA	1.85E04
	1990	NC.	្ទ្	MCA	Ş	5.24E01	<u>Ş</u>	S S	5.76E01	192	081	Ş Ş		3.92E06	5.88E06	కై క్ల	9.26E02	1.85E04 1.85E04
9	2000	<u>Ş</u> Ş	<u>Ş</u>	<u> </u>	N CA	5.24E01	Y C	V V	5.76E01	192	180	V V		3.92E06	5.88E06	3.92E06	9.26E02	1.85504
2.00	1985	Z Z	<u> </u>	Š	Ş	8.11.501	S S		<u> </u>	3 9	\$ 2 <b>\$</b>	Š Š	Y C	7.84E06	NCA 1.18E07	Y Y	<u> </u>	5.02E04
	1990	WCA.	2	NCA	MCA	8.11501	NCA	V S	8.92E01	007	340	NCA		7.84E06	1.18507	<b>X</b> C <b>X</b>	2.51E03	5.02E04
0.001	2000	<u> </u>	<u> </u>	3. 58E01	<u> </u>	1.11E02	<u> </u>	_	8.92E01	220	340	<u>ئ</u> کِ		7.84E06	1.18E07	Y S	2.51E03	5.02E04
	1985	2	<b>MCA</b>	Ş	1.11602	1.11E02	MCA		NCA	720	90	Š	2	1.31507	1.96E07	ΛÇ	NCA	1.04E05
	1990	4.86E01	<u> </u>	4.5E01	1.11E02	1.11202	5 S		1.22E02 1.22E02	720	650	Y Z	NCA NCA	1.31507	1.96E07	ζ X	NCA 5 02504	1.04E05
250.0	1980	MCA MCA	5	MCA.	<b>∑</b>	1.91602	NC.			1408	Š	Z Z	ŞŞ	NCA	NC EX	ŞŞ	NCA NCA	3.88E05
	1985	72 .	Y C	NCA 1	1.91E02	1.91602	NCA 1 72503	న్ల స్ట		1408	NCA SOC	NCA Soci	NCA NCA	3.26507	4.96E07	NC.	NCA	3.88E05
	2000	1.12E02 1.12E02	Ş	8.45E01	1.91602	1.91602	1.72E02			1408	2000	2000	S S	3.26E07	4.96E07	Ş	NCA	3.88E05
500.0	1980	<u>ځ</u> ک	<u> </u>	1.14202	NCA 2.93E02	2.93E02 2.93E02	V V	S S		2880	Y C	NCA NCA		NCA S3E07	Š Š	ŽŽ	Y Y	MCA 1
	1990	1.30202	Ş	1.14E02	2.93E02	2.93E02	2.63802	Y C		2880	4.0E03	4.0E03		6.53E07	9.80E07	Ş	NCA	7.76EUS
0 0 0 0	2000	1.30E02	Ş	1.14E02	2.93E02	2.93E02 3.87E02	2.63E02	<u> </u>	3. 22E02	2880	4.0E03	4.0E03	NCA	5.53E07	9.80E07	V V	ACA MC	7.76E05
?	1985	ថ្ន	Ş	1.42E02	3.87E02	3.87E02	ទ្ធ	NCA	Ş Ş	2880	NC.	Z V	ž	Z Z	Ş	NC.	NCA	1.16506
	1990	1.65202	Y S	1.42E02	3.87502	3.87E02	3.48E02	Y C	NCA 4.26E02	2880	6.0503	NCA OF01	NCA NCA	9.79507	1.47508	V V	NCA NCA	1.16506
0.0001	1980	NCA NCA	Ş	1.42502	Ş	4.81E02	Ž	NCA	NC.	2880	NCA	NCA O	ş Ş	NCA NCA	\$\frac{1}{2}\frac{1}\frac{1}{2}\f	S S	YCA NCA	NCA NCA
	1985	1.72E02	1.89E02		4.81E02	4.81E01	NCA	N C	N.	2880	NCA	NCA	NCA	NCA	¥CA	NCA NCA	NCA SO	NCA.
	1990 2000	1.72E02	1.89502	1.46E02	4.81E02	4.81E02	4.33E02 4.33E02	Z V	NCA 5.29E02	2880	1.0504	NCA OF O	Y Z	1.31508	MCA 96508	S S	N CA	1.04E06
5000.0	1980	2.08E02	NCA		NCA	2.57E03	NCA NCA	NCA	NCA	2,160	NCA	NCA	NC.	NCA	NCA	NCA	NCA	NCA
	1985	2.08E02 2.08E02	2.29E02 2.29E02	1.73E02	2.57E03	2.57E03	NCA 2 11F03	Š Š	N CA	5760	NCA 1,25E05	NCA NCA	NCA NCA	NCA NCA	Š Š	V V N	S S	Y N N
	2000	2.08E02	2.29E02		2.57E03	2.57E03	2.31603	NCA	Y Y	2,0975	1.25E05	1.25E05	NCA	5.53E08	NCA	NCA	NCA	NCA

PARAMETER: VOLUME (ex. B.O.P.) UNITS: CUBIC FEET

SEEST DEPARTM CONSIDER CONSIDER SANCERED DEFENDE CONTROL CONTROL SERVICES SERVICES DEFENDED DESCRIPTION DESCRIPTION OF SANCE

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HORIZOHTAL AXIS	3.96E02	3.96E02	_			9.31502	2.24E03	2.24E03	2.24503	4. 2003	4.20E03	4.20E03	1. 14E04	1.14E04	1.14E04	2.27E04	2.27E04	2.27E04	8 48504	8.48E04	8.48E04	1.69E05	1.69E05	1.69E05	2.54E05	2.54E05	2.54E05	ָבְּיבְּיבְּיבְיבִּיבְיבִיבְיבִיבְיבִיבְיבִיבְיבְיבְיבִיבְיבְיבְיבִיבְיבְיבְיבְיבִיבְיבְיבְיבְיבְיבִיבְיבְיבְי	2.27E05	2.27E05	NCA NCA	\$ \$ \$	NCA
VERTICAL	1.98502	1.98E02	1.98E02	4.66E02	4.66E02	4.66E02	1.12503	1.12E03	I. IZEO3	2.10503	2.10E03	2.10E03	<u> </u>	5.70E03	5. 70E03	S S	5	1.14E04	<u> </u>	NCA	NCA NCA	Ş	NCA	<u> </u>	Ş	NCA	NCA NCA	<u> </u>	NCA NC	NCA	NCA	Š Š	NC.A
- РНОТОСИЕМІСАL	NCA	ខ្ពុ	1.96E04	న్ల న	NC	6.53204	<u> </u>	<u>ر</u> کو	4.01EU5	រុស្ត	2	3.92E05	<u>د</u> ک	NCA	<b>∑</b>	V S	Ş	<u>ځ</u>	۷ <u>۲</u>	NC.	<u>ک</u> ک	Ş	NCA	<u> </u>	Ş	NCA	Ž Ž	Z Z	Y,	NCA	NCA LCA	S S	NCA
ACTIVELY COOLED	2.94E04	2.94504	2.94504	9.80E04	9.80004	9.80504	3.92E05	3.92E05	3.92E05	5.88E05	5.88E05	5.88E05	1, 18806	1.18E06	1.18E06	NCA 1 04 FOA	1.96E06	1.96E06	4 90 FOK	4.90E06	4. 90E06	Z.	9.80E06	7. 80E09	Ş	1.47E07	1.47507	֖֖֝֞֞֝֟֝֓֟֝֓֓֓֓֓֓֓֓֓֓֟֟֓֓֓֓֓֓֓֓֓֓֓֟֓֓֓֓֓֓֓֓֓	<u> </u>	1.96E07	NCA	<u> </u>	NCA
1A.f. 31A.19	1.96E04	1.96504	1.96604	6.53E04 6.53E04	6.53E04	6.53504	2.61805	2.61E05	2.61E05	3.92E05	3.92E05	3.92505	7.84505	7.84E05	7.84E05	1.31506	1.31606	1.31506	2,6FO6	3.26E06	3.26E06	6.53E06	6.53E06	0.33E06	Z Z	9.79E06	9. 79E06	Ž Ž	1.31E07	1.31507	NCA	NCA NCA	6.53E07
POLYNER	NCA	រ្តីស្គ	0.1	<u> </u>	Ş	3.0	<b>Ş Ş</b>	NC.	7.7 MC	Ş	NC.	7.2	<u> </u>					NCA		NCA	V CV	§ §	NC.	<u> </u>	<u> </u>	NCA	NCA	Y S	ŠŠ	NCA	NCA	S S	NCA
HOLTEN CARBONATE	NCA	Į į	<u>ح</u>	<u>Ş</u> Ş	NCA	S S	Z,	Y CY	<u> </u>	2	Ş Ç	<u> </u>	<u> </u>	NCA	NC.	کر کر مرکز	Ş	NCA	֓֞֞֞֜֞֞֞֞֞֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֞֓֓֓֓֓֓֓֓֞֓֓֓֡֡֞֡֓֓֓֡֡֞֡֓֞֓֓֡֡֞֡֓֡֓֡֡֡֡֡֡	§ 8	89	្ត្	124	124	<u></u>	NCA	186	Ž Š	کِ کِ	248	NCA	<u> </u>	1530
PHOSPHORIC PROSPHORIC	NCA	1.5	1.1	NCA V	3.3	3.3	6.5	8.4	8.4 V	10.0	8.0	0.8	20.05 0.05	16.0	16.0	NCA 2, CA	28.0	28.0	Ž Ž	26.0	56.0	§ §	104	* S	ž ž	156	156	<b>4</b> 5	208	208	NCA	1260	1260
	144	144	144	144	144	144	144	144	192	192	192	192	3 0	007	004	720	720	720	1408	1408	1408	2880	2880	2880	2880	2880	2880	2880	2880	2880	5760	2760	5760
KINEHVLIC	MCA		1.44	<u> </u>	6.80	4.80	<u>5</u>	6.20	0. 70 MCA	<u>Ş</u>	9.30	05.80 10.80	<b>Ş</b> Ş	1.86E01	1.86E01	Y CY	3. 10E01	3.10501	<b>5 5</b>	7.75E01	7.75E01	<u> </u>	1.55502	1.55502	<u> </u>	NCA	233	į	<u> </u>	3.10E02	NCA	NCA	NCA NCA
MOT219	NCA MCA	7.20E-01	7.20E-01	<b>5</b> 5	2.40	7.40 MCA	Ş	Ž,	MCA.	Ž	ACA MCA	§ §	YC.	SC.	ž į	<u> </u>	NC.	<u>Ş</u> Ş	క్ష	NCA.	<u> </u>	NCA NCA	<b>Š</b>	\$ <u>\$</u>	Z)	NC.	NCA NCA	S Z	KCA KCA	NCA	NCA NCA	Z Z	NCA
ADIABATIC	MCA	Ş	<b>V</b>	រុទ្ធ	SZ.	<u> </u>	MCA	<u>Ş</u>	§ §	NCA	<u>ک</u>	<b>S S</b>	Z Z	Ş	<b>∑</b>	<u> </u>	5	Ş	\$ \$	5.27E01	5.27501	Ş	8.50E01	8.50E01	្ត្	1.15E02	1.15E02	ψ Sign	NCA 1 44502	1.44E02	NCA	NCA SOFO	8.50E02
TURBO- CHARGED	NCA NCA	2	<u>ځ</u>	3.97	3.97	3.97	1.07E01	1.07201	1.42501	1.42E01	1.42501	2 27501	2.27801	2.27E01	2.27E01	3.18E01	3.18501	3.18E01	5.85F01	5.85201	5.85E01	9.45E01	9.45E01	9.45201	1.28E02	1.28E02	1.28E02	1.60E02	1.60E02	1.60E02	7.84E02	7.84E02	7.84E02
TURBO- COMPOUNDED	NCA NCA	2	<u>5</u>	វ្ន	<b>5</b>	<u> </u>	KC.	<u></u>	5	MCA	<b>∑</b> ;	<b>5</b> 5	Ş	MCA	<b>∑</b>	NCA 18601	3.18E01	3.18101	8.4 5.85E01	5.85201	5.85501	9.45E01	9.45E01	103C4.6	1.28E02	1.28£02	1.28E02	Y CA	1.60E02	1.60E02	NCA.	7.84E02	7.94E02
NON-RECENERATIVE	NCA MCA	5	<b>5</b> 5	្ន	<u>5</u>	<u> </u>	<b>∑</b>	<u></u> 2	រុ	YC.	Y Z	<b>5</b>	2	MCA	1.43201	<u> </u>	1.8E01	1.8201	<u> </u>	3.38E01	3.38E01	4.55E01	. 55E01	. 55E01	5.69501	5.69501	5.69E01	5.82E01	5.82E01	5 82501	6.9E01	6.9E01	6.9E01
CACEE	V)N	5	<b>5</b> 5	វត្ត	<b>5</b>	<b>5</b> 5	MCA	<u>Ş</u>	§ §	2	<u>ئ</u>	<u> </u>	្ត្	<b>Ş</b>	<b>≨</b>	<b>5</b> 5	<u>Ş</u>	<b>S</b>	<u> </u>	Ş	<b>5</b>	Ş	\$	Y S	<b>Ş Ş</b>	Ş	KCA:	<b>∑</b>	9.28501	9.28501	NCA	1.14502	1.14E02
RECENERATIVE OPER-CYCLE	55	5	<b>5</b>	12	<b>∑</b>	វ្ វ្	MCA	<b>5</b>	<u> </u>	2	<u>ک</u>	<b>5</b>	<b>Ş</b>	Ş	స్త	<u>5</u> 5	2.16201	2.16E01	<b>5 5</b>	4.39E01	4.39E01	្ន	6.14501	6.14E01	្ត្	7.97501	7.97501	<b>5</b>	8.44E01	8.44E01	1.04.607	1.04E02	1.04E02
YEAR	1980	2	900	1980	1990	2000	1985	961	1980	1985	1990	2000	1985	1990	2000	1980	1990	2000	1980	1990	2000	1985	1990	2000	1985	1990	2000	1980	1985	2000	1980	1985	2000
POWER, KW	1.5			0.		0 0	?	-	30.0	?		9	3			0.00			230.0			3		9	 ?			10001			5000.0		
	HORISCHIEFE  ACENTALE  COOLED  FLATE  COLLVEL  FLATE  FLAT	WALLE  COOLED  COOLED	TO SECOND VXIS  TO SECOND VXIS	TO SEE SEE SEE SEE SEE SEE SEE SEE SEE SE	VECTOR STATE  1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1	1.0   1.0	4.06 20 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	17.00   17.0	1.2 Second NCA 1.12803  1.3 Second NCA 1.28804 1.12804 1.12805	17.07201   17.07201	1.200   1.1200   1.	1.000   1.00	1.5 1990 NGC	1.2003   1	1.2 PROPERTY LANGE AND A LANGE	No.	1.2   1.2	1.2002   1.2003   1		1999   1.75	1.2003   1	CONTROLLED   1.000	No.   No.	1.00   1.00	Note   1.00	NATIONAL   1980   198	1985   1985	ANTE STATE OF THE	A	A	Value   Valu	A	Value   Valu

											_											_	_					_					7
FBINES	HORIZGRIAL	3.6E01	3.6501	3.6501	7.35501	7.35501	7. 35E01 2.94E02	2.94E02	2.94E02	4.41E02	4.41E02	4.41502	4.41E02 6.87E02	8.82E02		8.82502			3.66503	3.66E03	3.66E03	NCA NCA	7.35E03	7.35E03	Ş	1.10E04	1.10504	NCA	Ş N	1.47504	NCA CA	NCA	NC A
WIND TOPBINE	VERTICAL	3.6E01	3.6501	3.6601	7.35501	7.35E01	7. 35E01 NCA	2.94E02	2.94E02	¥Ç <b>A</b>	4.41502	4.41502	4.4.1E02	MCA	8.82502	8.82E02 NCA	<b>K</b> C	MCA.	NCA NCA	Z,	Š	\$ <u>\$</u>	Z S	S S	Z,	NC.	\$ \$	NCA.	NC.	<b>5</b> 5 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	NCA NCA	NCA	NCA NCA
	PHOTOCHENICAL	NCA NCA	<u> </u>	1.97E03	<u>5</u>	<b>5</b>	NCA PED	Y C	70AC 9	2	<u> </u>	5	3.95E04 NCA	<u>Ş</u>	Ş	Ş	<b>Y</b>	Ý ý	<u> </u>	YC.	V V	<u> </u>	<u>Ş</u>	<u> </u>	స్త	NCA NCA	ž ž	¥Ç.	Y C	¥ 5	Ş	NC.	NCA
4.1AICs	COOLED ACTIVELY	2.96E03	2.96E03	2.96E03	9.86E03	9.86E03	3.94504	3.94E04	3.94E04	5.91E04	5.91E04	5.91504	NCA 1504	1.19505	1.19E05	NC SECON	1.97E05	1.97205	1.9/E03	4.93E05	4.93E05	NCA NCA	ZZ.	9.86E05	NCA NCA	Z.	1.48506	2	Š	NCA P	NCA NCA	NC.	NCA
FROTOVOLTAIC	TA.19 3TA.19	1.97803	1.97503	1.97E03	6. 59E03	6.59E03	2.63804	2.63E04	2.63804	3.95E04	3.95804	3.93204	7.91804	7.91EO4	7.91E04	1.32505	1.32E05	1.32505	I. 32EU3	3.29805	3.29505	NCA	6.59805	6.59E05	NCA	MCA MCA	9.88E05	NC.	¥Ç.	1.32E06	NCA C	NCA	NCA 6.59E06
	POLYMER	Y S	S S	2 NG 2	YC.	న్ల క	NC.	Ş	ర్హ క	Ž,	<u>Ş</u>	<u>.</u>	₹Ş	MCA MCA	NCA NCA	Ş	Ş	S S	ž ž	NCA	Š Š	ž Ž	<u>5</u>	<u> </u>	¥Ç	NC.	<u> </u>	XC.	NC.	Y S	<u></u>	NCA	NCA
MEL CELLS	HOLTEN	NCA	∑	ర్జ స్ట	NC.	<u> </u>	Y.	V S	ž ž	Ş	<u> </u>	ζ.	NCA	Z :	V C	₫	<b>5</b>	V C	K C	Y.	210	NG A	Ž,	3 8	Ş	NCA Si	200	NC.	NC.	<b>Y</b> 5	<b>Y</b>	NC.	6.0E03
Ē	PHOSPHORIC	NCA	7 7	7 7 N	•	•	Š.	77	<u> </u>	NC.	38	7,4	NCA	9	5,5	şş	8	2 5	2 2	NCA S	8 8	NC.	<b>5</b> 8	3 9	NC.	Z S	550	MC.	NC.	8 8	3 <u>4</u>	NCA	6.0E03
ORCS		36	~ ? #	92 92	2 %	× ×	2 %	200	£ %	87	89 9	9	8	8	28	12.8	120	150	176	176	9/1	184	78.	184	192	192	192	256	256	256	384	384	384
SUM	KINEHVLIC	25	3.21	3.21 MCA	ž	2.75	<b>₫</b>	2 5	2.01E01 2.01E01	Ş	#CA	2 67801	Ž	ర్జ	2.70E01	NCA SE	¥Ç	3.70E01	N.	2	4.78E01	NCA	2	7.33201	Ş	MCA	9.68E01	¥C¥	NCA	NCA 1	NCA NCA	NC.	NCA
STIRLINGS	NOT214	55	3.21	3.21 MCA	MCA	2.75	KCA.	<u>ک</u> ک	2.01E01	MCA	<u> </u>	MCA	NC.	Y S	<u> </u>	¥Ç	Ž Š	<b>5</b> 5	Ş	<u>ک</u> ک	<u> </u>	Z)	<u> </u>	S S	Š	<u>ک</u> ک	<u>ح</u>	NCA	Z Z	<u>د</u> ک	V.	Y S	NCA
	ADIABATIC	MCA MCA	5	<b>5</b> 5	Z ;	្ត្	2	<u>د</u> د	§ <u>Ş</u>	<b>5</b>	<u> </u>	Ş	Ž	YC.	Y S	Ą.	Ş	Ž Ž	<b>5</b>	Š	4.30601	¥Ç.	NCA Series	6.58E01	<b>∑</b>	MCA 1	8. 70E01	NC.	NCA	1.08E02	NCA NCA	NCA	4.63E02
DIESELS	TURBO- CHARGED	NCA NCA	2	₹.7 2.7	7.75	2.7	2.01001	2.01E01	2.01E01	2.62E02	2.62E02	2.62E02	2. 70E01	2. 70E01	2.70501	3. 70E01	3. 70E01	3.70501	4.78501	4.78501	4./8E01	7.33501	7.33501	7.33501	9.68E01	9.68501	9.68E01	1.20E02	1. 20E02	1. 20E02	_		14E02
•	TURIO-	NCA	5	<u> </u>	Y S	វ្ន	<b>5</b>	<u> </u>	5	<u>5</u>	<b>5</b>	¥C¥	Ş	<u>ک</u>	<u>ځ</u> ک	ర్జ	3.70501	3. /0501	<b>5</b>	4.78501	4.78501	MCA	7.33501	7.33501	2	9.68501	9.68E01	MCA	1.20E02	1.20202	NC	5.14502	5.14E02
	OPEN-CYCLE HON-RECENERATIVE	NCA NCA	ត្ត	រុត្ត	្ត វ	វត្ត	<b>5</b>	5 5	5	5	្ត្	YC.	NCA NCA	<u></u>	2	<b>Ş</b>	<b>∑</b>	2.45E01	NC NO.	<u>ځ</u>	6. 28501	6.54E01	5. 54E01	6. 54E01	3.40E01	8.40E01	3.40E01	1.00E02	1.00E02	1.00E02	1.00E02		2.66E02 2.66E02
CAS' TURBINES	CLCFE	Y Y	5	វ វ	5	<u> </u>	5	<u>ک</u> ک	12	<u>5</u>	<u> </u>	Š	5	5	<b>5</b>	5		<b>5</b> 5	5	5	5 5	Ş	<u>5</u>	5 5	2	V S	<u>ئ</u> ي	¥Ç	1.16E02	1.16E02	I. Ib E02 NCA		3.09E02 3.09E02
3	OPEN-CYCLE OPEN-CYCLE	Y Y	5	<b>១</b> ១	2	្ត្	2	1	12	2 5	<b>5</b> 5	2	Y	<b>∑</b> ;	<u> </u>	5	2	2.61501	2	2	4. 56E01	NC.	<b>S</b>	6.97801	MCA.	MCA PAROL	8.95E01	Ş	1.07E02	1.07202	1.0/E02 2.83E02	2.83202	2.83E02 2.83E02
	Nay.	1960	8	00 00 00	985	900	98	1985	8	1980	1985	2000	1980	985	2000	1980	-	1990		_	1990		-	2000		1985	2000	1980	1985	1990	1980	1985	1990 2000
	POWER OUTPUT LEVEL, KW	1.5		5.0			20.0		- ~	0.00			0.09	_		100.001	_		250.0			200.0			750.0			1000.0	_		2000.0	_	

HETER: ARSA (ex. B.O.P.) UNITS; SQUARE FEET

inggal belikusus (belieber Belieber). Kaaanasi elepadari elepadari depader) kaaaaaan bahaada elepadari baabis

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BINES	SIXV TYTROZIYON	3.6501	3.6E01	3.6501	4.9501	4.9501	4.9501	6.4E01	6.4E01	6.4E01	1.00E02	1.00E02	1.00E02	2.00E02	2.00E02	2.00E02	2.00E02	3.20502	3.20502	3.20E02	8.00E02	8.00E02	8.00E02	NCA	1.60E3	1.653	Ş	2.4E3	2.4E3	2.4E3	YCY YCY	3, 2E 3	3. 2E3	NCA	NCA	NCA NCA
WIND TURBINES	VERTICAL	3.6E01	3.6501	3.6501	4.9E01	4.9E01	4,9501	Y .	6. 4E01	6.4E01	Ş	1.00E02	1.00E02	NCA EX	¥C.	2.00E02	2.00E02	\$ \$	Š	3.20E02	<u>ک</u>	<u> </u>		NCA	Y S	٠ ٢	Z Z	NCA	Š	NC.	<u>ار</u> د	Y Y	Ç.	NCA	V.	NCA
	РНОТОСИЕМІ СА <b>L</b>	NCA	Š	1.96E03	NC.	<u> </u>	6.53E03	Ž Ž	្ត្	2.61E04	<b>Y</b>	<u>Ş</u>	§ 6	NCA EUG	NC.	<b>∑</b>	<u>ک</u>	<u> </u>	Ş	Ş	NCA NCA	<u> </u>	Ş	YÇ.	Š.	<u> </u>	Ş	NC.	NCA NCA	Š Š	ار م د م	\$ \$	Y.	NCA	NCA	NCA NCA
LTAICS	ACTIVELY	2.94E03	2.94E03	2.94E03	9.80503	9.80503	9.80E03	3.92E04	3.92504	3.92E04	5.88E04	5.88E04	5.68E04	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	1.18E05	1.18505	1.18505	1 PK FOR	1.96E05	1.96E05	<u>క</u>	4.90E05	4. 90E05	NC.	<b>∑</b>	9.80505	KCA CO	Ş	1.47E06	1.47E06	<u> </u>	<u>ح</u> ک	1.96E06	Z Y	YCA.	NCA NCA
PHOTOVOLTAICS	TAIT TAITE	1.96E03	1.96503	1.96E03	6.53E03	6.53503	6.53503	2.61E04	2.61E04	2.61E04	3.92E04	3.92E04				7.84E04	7.84E04	1.31605	1.31505	1.31605		3.26E05	3.26E05	¥Ç	6.53E05	6.53505	NCA SEC	NC.	9.79E05	9.79E05	Ž Š	NCA 1 21506	1.31506	NCA	NCA	NCA 6.53E06
	SOLID	NCA	<u> </u>	8.0	NCA NCA	Ž Ž	8.0	<u> </u>	Ş	8.0	Y.	<u>ک</u> ک	. 8	Ş	NCA	Y :	§ ;	<u> </u>	Ş	NCA	Z i	Š Š	ζ.	KC.	Z ;	<u> </u>	KC Y	NC.	NCA	ZZ.	<u>ح</u>	V V		NCA	NCA	NCA NCA
MEI. CELLS	MOLTEN CARBONATE	NCA	Ş Ş	MCA	Y Z	NC.	KC.	ខ្ពុំ	MCA	S S	Ž Š	\ \frac{1}{2}	Ş	NCA NC	NC.	NCA NC	Į,	<u> </u>	NCA	MCA	<u>ک</u>	٥ °	0.4	NC.	NCA	12.0	NCA.	NCA	NCA	18.0	NCA NCA	NCA NCA	12.0	NCA	NC.	NCA 108.0
E	PHOSPHORIC	NCA	<b>*</b> -	::	NCA.	: :	::	<u>ح</u> د	1.6	1.6	NCA	2.2	9	<u> </u>	2.2	9:	9:0	۲ م د م	3.2	3.2	Š	<u> </u>	4.9	Š	V.S	9.71	2	NCA	19.2	19.2	Z S	NCA 25.6	25.6	NCA	NC.	90.06
ORCS		36	£ 5	2 %	36	2 %	36	8 %	R %	36	89 9	8) o	9 %	8	26	8	2 5	2 2	202	120	176	9/2	176	184	781	184	192	192	192	192	256	256	256	384	384	387
8	KINEHVLIC	HCA NCA	4.80E-01	4.80E-01	<u> </u>	1.67	1.67	<u> </u>	1.74	1.74	<u>ک</u>	₹ <sub>01</sub> .,	7.10	Ž	Ę	7.56	٥٠.	<u> </u>	3.10	3.10	<b>∑</b> ;	7.75 T.	7.75	¥Ç	<b>∑</b>	1.55501	Š	NCA	<u>Ş</u>	23.3	۲ کر د ک	<u> </u>		NCA NCA	NCA	S S
STIRLINGS	MOTELS NOTELS	72	4.8E-01	4.8E-01	<u>Ş</u>	1.67	1.67	<u> </u>	<b>Ş</b>	1.74	Š			NCA	MCA.	Y S				Ž,	֓֞֞֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓		¥C≱	<b>∑</b> ;	§ §	Ş	MCA	Š	Ş	V S	¥ 5	ŞŞ	V N	NCA	VCV	۲ کر پرک
	ADIABATIC	NCA	<u> </u>	<u>ح</u>	<b>5 5</b>	Y)	Ž,	<b>≨</b>	2	Y S	<b>5</b> §	្ត្	Š	¥Ç,	YC.	YC.	<u> </u>	<u> </u>	2	MCA	<u>Ş</u>	1.37801	1.32501	MCA	ACA	2.12501	MCA	Ş	2.88E01	2.88E01	<u>Ş</u>	NCA 3 SOFOI	3.59501	NCA	NCA	1.41E02 1.41E02
DIESELS	TURBO- CHARGED	NCA NCA	<u> </u>	ু হ	66.	1.99	2.99	5.35	5.35	5.35	2.70	7.10	7.10	7.56	7.56	7.30	1.06201	1.06E01	1.06E01	1.06501	1.46E01	1.46E01	1.46E01	2.36E01	2.36E01	2. 36E01	3. 20E01	3.20E01	3.20E01	3.20E01	3.99501	3.99501	3.99E01	1.57E02	1.57E02	1.57E02 1.57E02
	TURBO- COMPOUNDED	NCA	5	<b>S</b>	<u> </u>	5	<u>Ş</u>	<u>Ş</u>	\$	<u>ئ</u>	<u> </u>	\$ 5	Š	MCA	Ş	Y ;	ن ا ا	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	1.06601	1.06201	<u>Ş</u>	1.46501	1.46501	#CA	2 36501	7.36501	7. Y	3.20E01	3.20E01	3.20E01	XC.	3.99501	3.99501	NCA	1.57E02	1.57E02 1.57E02
	NON-RECENERATIVE	MCA MCA	<u>Ş</u>	្ត្	្ត្	Ş	<u>5</u>	§ 5	<b>5</b>	ঠ :	55	Ş	MCA MCA	Ş	<b>∑</b>	¥C.	% 	<u> </u>	8.87	8.87	<b>∑</b>	\$ S	13.0	1.75E01	1.75501	1.75£01	7 19501	2.19501	2.19501	2.19E01	2.24E01	2.24501	2.24E01	1.22E02	1.22E02	1.22E02 1.22E02
CAS TURBINES	CACEE	V S	2	<b>5</b>	<u> </u>	MC	Y C	<u>د</u> ک	Ş	<u>Ş</u>	Į	រុ	<b>∑</b>	<b>Ş</b>	MC.	<b>5</b>	<b>5</b> §	1	<b>∑</b>	MCA	<b>∑</b> ;	<u> </u>	¥C.	Z	Ž	<b>5</b>	<b>ఫ</b>	MCA	MCA	<u>ک</u>	Y C	3.09501	3.09E01	NCA.	1.41602	1.41602
š	OPEN-CYCLE	NCA	្ត	₫;	<u> </u>	Ž	<u>5</u>	្ន	ž	<u>ک</u>	<b>5</b> 5	រុំ ខ្លុំ	Ş	<b>∑</b>	<b>X</b>	<u>ک</u>	<b>5</b> 5	<u> </u>	9.45	9.45	<u>ک</u>	5 °	13.8	MCA	<u>ک</u>	18.7	Ş	NC.	23.3	23.3	<u>ک</u> ک	28.5	28.5	1.29E02	1.29E02	1.29E02 1.29E02
	AA3Y	1980	1990	2000	1980	1990	2000	1985	1990	2000	1980	1960	2000	1980	1985	1990	2000	1980	1990	2000	1980	1985	2000	1980	1985	1990	1980	1985	1990	2000	1980	1985	2000	1980	1985	1990 2000
	POWER, KW	1.5	•		0.5			0.0			o.			0.09			9	9.0			250.0			500.0			750.0				1000.0			5000.0		

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POLINDS	
SELTS:	
AKAMETER	

No. 1, 1980   1, 1980		TURBINES	3.	-	DIESELS		STIRL	NCS.	ORCS	z -	UEL CELLS		Уогона	LTAICS	-	SIND TOR	BINES
N. C.   N. C	CACLE		OPEN-CYCLE NON-RECENERATIV	TURBO- COMPOUNDED		ADIABATIC	FREE	KINEWVIIC				SOL ID POLYMER	17.17 17.19		РНОТОСИЕЖІ СА <u>Г</u>	VERTICAL Axis	JATPOSTROII STXA
NEC.   NEC.   NEC.   NEC.   1.08602 2.11502 3000 2.0002   NEC.   1.08602 2.11502 3000 2.18002   NEC.   1.08002 2.11502 3000 2.18002   NEC.   1.08002 2.11502 3000 2.11502 3000 2.11502 3000 2.11502 3000 2.11502 3000 3	NCA NCA		NCA NCA	NCA	NCA	NCA	NCA	NCA	3300	NCA 2 SE02	NCA NCA	NCA	8.46E03	2.45E04	NCA	9.53503	9.53E03
N. C.   N. C.   N. C.   1.08E02   1.15E02   1.35E02   1.55E03   N. C.   1.08E02	2		<b>2</b> 5	YC.	Ş	NC.	1.08E02	2.15E02	3300	2.0502	Ş	S S	7.66E03	2.36E04			8.50E03
NCA   NCA   0.56802   NCA   0.50803   NCA   0.00803   NCA	§ §	_	<u>د</u> ک	<u> </u>	8CA 84502	Ş Ş	1.08E02	2.15E02	3300	2.0E02	<u>ئ</u> ک	2.0502	7.58503	2.35E04			8.40E03
NCA         NCA         9.84502         NCA         2.95002         5.75 00         7.0 E02         NCA         7.0002         2.53500         7.6 E02         NCA         1.13502         7.5 E02         NCA         1.13502         7.5 E02         NCA         1.13502         7.5 E02         NCA         1.13502         7.5 E02         NCA         1.13502         3.15503         NCA         1.13502         3.15503         NCA         1.13502         3.15503         NCA         1.13502         3.15503         NCA         1.13503         3.15503         NCA         1.13503         3.15503         NCA         1.15503         3.15503         NCA         1.15503         NCA         NCA <td>Ş</td> <td></td> <td>NC.</td> <td><u> </u></td> <td>9.84E02</td> <td>ŞŞ</td> <td>Z Z</td> <td><u> </u></td> <td>5720</td> <td>8.75E02</td> <td><u> </u></td> <td><u> </u></td> <td>2.63504</td> <td>7.93504</td> <td></td> <td></td> <td>2.72E04</td>	Ş		NC.	<u> </u>	9.84E02	ŞŞ	Z Z	<u> </u>	5720	8.75E02	<u> </u>	<u> </u>	2.63504	7.93504			2.72E04
N.C.   C.   C.   C.   C.   C.   C.   C	Ş	_	NCA NCA	Y.	9.84E02	NC.		5.92E02	5720	7.0 E02	NCA	Ž,	2.55504		Ş	2.63E04	2.63E04
NCA   NCA   2.03E03   NCA   NCA   1.5E03   NCA   NCA   1.05E03   1.17E03   NCA   NCA   2.05E03   NCA   1.05E03   1.17E03   NCA   1.05E03   1.17E03   NCA   1.05E03   1.01E03   1.17E03   NCA   1.05E03   1.01E03   1.0	Y Y		<u> </u>	<u> </u>	9.84E02 2.03E03	ర్జ స్ట్ర		5.92E02	5720	7.0 E02	Š	7.0507	2.53E04		2.53E04	2.6CE04	2.60E04
NCA   NCA   2.08E03   NCA   NCA   1.45E03   4.200   4.28E03   NCA   1.07E03   3.115E03   1.01E03   NCA   NCA   2.68E03   NCA   NCA   2.68E03   NCA   3.68E03   NCA   4.2E03   NCA   NCA   4.2E03   NCA   NCA   4.2E03   NCA   4.2E03   NCA   NCA   NCA   NCA   4.2E03   4.2E03   NCA   NCA   NCA   4.2E03   4	Ž		NC.		2.03E03	Ş		<u> </u>	4200	3.5E03	Ş	\$ \$	1.05E05	3.17E05	5 5	9.11E04	9.11504
NCA   NCA   2.65203   NCA   2.62203   NCA	MCA	_	<u>ح</u>		2.03E03	Y ;	NCA	1.49E03	4200	2.8E03	Y .	<u>ک</u>	1.02505	3.15E05	Ş	8.81E04	8.81504
NCA   NCA   2.65503   NCA   NCA   NCA   2.07603   5.2803   NCA   1.57805   4.7805   NCA   1.57805   4.7805   NCA   NCA   1.65803   NCA   4.2803   NCA   NCA   NCA   4.2803   NCA	֝֞֞֞֝֞֝֞֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓	_	<u>ح</u>	_	2.65E03	֓֞֞֞֞֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓	/ . 4 3 E 0 Z	1.49E03	200	VCA NCA	<b>5</b> 5	2.8503	1.01505	3.13505	1.01505	18.71504	8.71504
NCA         NCA         2.65503         NCA         NCA         2.62503         NCA         NCA         3.79603         5.4000         4.2803         NCA         NCA         4.71003         1.75005         4.7203         1.75005         4.72003         1.752005         4.72003         1.752005         4.72003         1.752005         4.72003         1.752005         4.72003         1.752005         4.72003         1.752005         1.72003         NCA         4.70003         NCA         4.70003         NCA         4.70003         NCA         4.70003         NCA         1.72005         NCA         1.72003         NCA	Ž	_	<u>ځ</u>		2.65E03	S S		<u> </u>	2400	5.2E03	Ş	<u> </u>	1.68E05	4.09505		1.31605	1.31505
NCA   NCA   4.10E03   NCA   NCA   1.2E03   NCA   4.2E03   NCA   4.2E03   NCA   4.10E05   NCA   NCA   NCA   1.0E05   NCA   NCA   NCA   3.14E05   9.45E05   NCA   3.14E05   NCA   3.14E05   NCA   3.14E05   NCA   3.14E05   9.45E05   NCA   3.14E05   NCA   3.14E05   NCA   3.14E05   NCA   3.14E05   NCA   3.14E05   NCA   NCA   NCA   3.14E05   NCA   NCA   NCA   NCA   NCA   NCA   NCA   NCA   NCA   3.14E05   NCA	2	_	KCA.		2.65E03	Ş		2.07603	2400	4.2E03	NCA	S S	1.53505	4.73E05	5 5	1.27505	1.27E05
NCA	2	<u> </u>	<u>ئ</u> ي		2.65E03	NC.		2.07E03	2400	4.2E03	<u>ځ</u>	4.2E03	1.52E05	4. 70E05	1.52E05	1.26E05	1.26505
NCA   4.10E03   NCA   1.2E03   NCA   1.2E03   NCA   NCA   3.06E03   NCA   NCA	<u>ک</u> د	~	٠ ا		4. 10F03	<u>Ş</u>		NC.	12E03	¥ 2	Y C	NCA	3.37E05	ACA CA	NCA	NC.	2.68E05
NCA   4.10E03   NCA   NCA   1.59E03   1.2E03   NCA			5 2	_	4.10E03	<u> </u>		3. 59E03	12503	8.0503	<u> </u>	<u>ح</u> کے ج	3.14505	9.52E05	S S	A ROFOS	2.47605
NCA         5.61E03         NCA         NCA         44E03         NCA         NCA         NCA         44E03         1.8E04         NCA         5.61E03         NCA         NCA         44E03         1.8E04         NCA         5.61E03         NCA         NCA         44E03         1.8E04         NCA         NCA         5.61E03         NCA         NCA         44E03         1.3E04         NCA         NCA         5.61E03         NCA         NCA         NCA         44E03         1.3E04         NCA         NC	Š		22		4.10E03	<b>∑</b>		3.59E03	12503	8.0E03	Ş	Ş	3.04E05	9.40E05	NCA I	2.36E05	2.36E05
NCA         3.51503         NCA         A42203         1.8804         NCA         8.23504         1.5804         NCA         8.24509         1.3804         NCA         NCA         8.24503         1.3804         NCA         NCA         8.24503         1.3804         NCA         NCA         8.24503         1.3804         NCA         NCA         NCA         4.4603         1.3804         NCA         NCA         NCA         1.2804         1.3804         NCA         NCA         NCA         NCA         1.2804         1.3804         NCA         1.2804         NCA         NCA         NCA         1.2804         1.3804         NCA	2	_			5.61E03	NC.		NCA	44E03	NCA.	NC.	NCA	5.61E05	NCA	NCA	NCA	4.29E05
299         5.61E03         NCA         NCA         44E03         1.30Cot         NCA		_		_	5.61503	<u> </u>		NCA 1 4.2503	44E03	1.8504	Š Š	၌ နွဲ့	5.25E05	1.59506	Š	Y S	3.95E05
NCA         9.74E03         NCA         NCA         44E03         NCA         N	ŽŽ			_	5.61E03	Ş		1.42E03	44E03	1.36204	Ş Ş	§ §	5.05E05	1.57506	<u> </u>	3.78E05	3.82E05
NCA   9.74E03   9.74E03   NCA   1.14E04   44E03   NCA   1.28E06   3.98E06	¥	<u> </u>			9.74E03	Š		NCA	44E03	NC.	¥Ç.	NC.	NCA	Ş	NCA	NCA	1.01506
1.45E03 N.CA 1.51E04 N.CA N.CA N.CA N.CA N.CA N.CA N.CA N.CA	¥ ;	<u>.</u>			9.74E03	MCA 1050		NCA TO	44E03	NCA.	NCA	NCA	1.31E06	3.98E06	NCA NCA	NCA NCA	9.31E05
1.45E03 NGA 1.51E04 NGA	ÉŽ	<u>-</u>		_	9.74803	8. 78E03		14504	44503	3.4504	3.4504	<u> </u>	1.26506	3.93506	<u>د</u> کا کا	5 2	9.0000
1.45E01   1.51E04   1.51E04   1.51E04   1.50E04   1.50E04   1.51E04   1.50E04   1.50	¥	. 5	SE03		1.51E04	NCA		NC.	60.5E03	NCA	N S	Y Y	NCA.	NCA S	NC.	Š	NCA NCA
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1.1762) 1.11624 1.13624 1.23624 1.23624 1.23625 1.2	ž į	<b>5</b> :	1.45603	•	1.51504	1.36504		2.03E04	60.5E03	7.2E04	7.2504	<u>ح</u>	2. 54E06	7.90E06	NCA NCA	V Z	1.80E06
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2.89E03         NCA         2.52E04         NCA         NCA         NCA         112E03         NCA	ž	<u>.</u>	_	_	2.01EO4	1.81504		3.87E04	77E03	1.2E05	1.2505	NCA	3.78E06	1.18E07	NCA	N.C.	2.67E06
2.89E01 2.52E04         2.52E04         2.27E04         NCA         NCA         112E03         NCA         NCA </td <td>Z,</td> <td>5</td> <td>_</td> <td></td> <td>2.52E04</td> <td>NCA NCA</td> <td>V C</td> <td>NCA</td> <td>132E03</td> <td>V.</td> <td>NCA</td> <td>NCA</td> <td>NCA</td> <td>5</td> <td>V.</td> <td>NCA.</td> <td>NCA</td>	Z,	5	_		2.52E04	NCA NCA	V C	NCA	132E03	V.	NCA	NCA	NCA	5	V.	NCA.	NCA
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1.45E04 NCA	-	61503			2.52E04	2.27504	N C	NCA 1.69E04	132E03	1.6E05	1.6505	<u> </u>	5. 10F06	1, 57E07	NCA NCA	N A	3.78506
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40.0 G 30.0 G	-	1 E04	1.45504	1.38E05	1.38E05	1.24E05	NCA MCA	NC.A	\$00E03		NCA OFO	N CA	NCA	NCA	٠ ٢	V.S	<b>₹</b> 57
1.60E04		5. 1. 5. 5. 5. 5. 5. 5. 5. 5. 5. 5. 5. 5. 5.	CAST TURBINGS  CHOSED  CLOSED  CLOSED  CHOSED  CHOSED	TURBINGS  CYCLE  NCA	CCORED   C	TURBOL-  NCA	TURBINES  CTURBINES  CTURBINES  NCA	CTURENEE   NCA   NCA	CTURENEE   NCA   NCA	CT   TURBACE   NCA   N	CLOSED   C	CLOSED   C	CTUREINES   CAPTIMENTS   CAPT	COMPOUNDED   CHARGE   CHARGE	CLOSED   C	Company   Comp	CONTINUES   111381.5

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KB J NES	NATES CATAL	_	8.07503	8.07503	1.97504		1.97E04	5.98E04	5.98E04	3.98504	8.38E04	8.38504	8.38E04	1.51505	1.51505	1.51505	2.34E05	2.34E05	2.34505	5. 19805	5. 19505	5. 19E05	KCA E	00170	1.04E06	NCA	1.50E06	1.50E06	1.50506	¥ 5	. 08E06	2.08E06	Ž,	Ş	NCA
WIND TURBINES	VERTICAL AXIS	8.07E03	8.07503		1.97504	-	1.97504	٠,		2. 96EU4	70 A DE	8.38E04	8.38504	<u> </u>	1.51505	1.51505	<u>Ş</u> Ş		5	Y S	<u> </u>	¥C≯	Ž	<u> </u>	Z Z	NCA	<b>∑</b>	V C	ž ž	Z Z	Y.	NCA	NCA	ž ž	NCA
	PHOTOCHEMICAL	NCA	<u> </u>	6.02E03	Š	Ş	2.01E04	_	స్ట	8.03504	5 S	5	1.20E05	<u> </u>	\$	Z.	Z Z	\$ \$	Ş	<u>ک</u> ز	<u> </u>	Ž	<u>ح</u>	<u>د</u> ک	NCA NCA	NCA	XCA MCA	NCA E	V S	\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \	NC.	NCA	V S	Y Z	NCA
PHOTUVULTA (CS	VCTIVELY	2.20E04	2.20E04		7.35E04	7.35E04	7.35E04	2.94E05	2.94F05	7.94505	4.41505	4.41E05	4.41E05	¥ 0	8.82505	8.82E05	<b>5</b>	1.47506	1.47506	<u>ځ</u>	3.67506	3.67506	Ş	¥2,	7. 35E06	NCA NCA	NCA	1.10E07	1.10507	§ §	<b>5 5</b>	1.47E07	NC.	NCA N	NCA
PHOTOV	IAII 31A19	6.02503	6.02E03	6.02E03	2.01504	2.01504	2.01504	8.03504	8.03504	8.03504	1.20805	1.20505	1.20505	2.41505	2.41505	2.41505	4.01605	4.01605	4.01605	ZZ.	1.00506	1.00E06	NCA	2.01606	2.01E06	NCA	NCA	3.01E06	3.01506	\$ 5 2 2	4.01506	4.01E06	NCA	Š Š	2.01E07
	SOLID	NCA NCA	<u> </u>	4.0E01	<u>Ş</u>	2	1.4502	<b>Ş</b> Ş	Ş	2020.5	§ Ş	NC.	8.4E02	<u> </u>	<u>Ş</u>	<b>X</b> C	<u>ئ</u> ي	§ §	NCA N	<b>∑</b> §	<u> </u>	<b>Ş</b>	S i	¥ 5	\$ <u>\$</u>	<u>Ş</u>	NCA	<u>5</u>	<u>ک</u>	٠ د د	Ş	NCA	NCA	Ş Ş Ş	NCA
FUEL CRILLS	CARBONATE MOLTEN	VON NCV	S	Z	న్ల స్ట	NCA N	<b>5</b> 5	Ş	NC S	<u> </u>	2	¥Ç	S S	<u> </u>	MCA	YC.	<u> </u>	5 S	NCA	<b>5</b>	A. B.E.O.3	6.8503	MCA	MCA 1 44.504	1.44E04	NC.	<b>V</b> C	XC.	2.4E04	ۆر د	NC N	3.2E04	NCA	ž Ž	1.6E05
	PHOSPHORIC PACID	NCA	2.0E01	4.0E01	NCA 1 75E03	1.4502	1.4502	7.0502	5.60E02	5.60E02	1.04503	8.40E02	8.40E02	5 E	1.60E03	1.60E03	NCA NCA	3.4503	2.72E03		ACA REG		Š	NCA V E	1.44E04	NCA N	NCA	2.4E04	2.4504	Y Y	3.2504	3.2E04	NCA	1.6E05	1.6E05
ORCS		3300	3300	3300	5720	5720	5720	4200	4200	3 2	24.0	2400	0075	2000	12000	12000	00077	700077	44000	700c	44000	000**	90209	0000	90200	7000	77000	77000	7000	32000	132000	132000	200000	200000	500000
SUM	KINENVIIC	NCA NCA	5.79801	5.79E01	<u> </u>	1.93502	1.93502	<u>Ş</u> Ş	3.67E02	7. C.	<u>Ş</u>	5.51502	5.51602	<b>5</b> 5	1.10203	1.10003	<u>Ş</u> Ş	1.84E03	1.84E03	្ត្	4.59503	4.59E03	<u>ځ</u>	9. 19E03	9.19803	<b>∑</b>	MCA.	NCA.	1.38504	\$ \$	5 5	1.84E04		A CA	
STIRLINGS	MOT219	NCA NCA	2.90E01	2.90E01	ర్జ స్ట	9.65E01	7.03E01	<u>Ş</u>	NCA NCA NCA	N.C.	Š	٧ کو	<u> </u>	KC.	Z	Ş Ş	<u> </u>	Ş	Y S	5 5	Ş	Z)	<u> </u>	2	MCA	Z,	V C	YC.	5 <u>5</u>	NCA	NC.	NCA	NCA NCA	Y S	NCA
	DITABATICA	NCA NCA	5	KC.	<u> </u>	NC.	<u>ئ</u> ک	<b>∑</b>	Ş	Ş	NC.	Ş	<b>5</b> 5	2	¥C¥	<u>ک</u>	<u> </u>	2	<b>Y</b> C	<u> </u>	2 66803	2.66203	Z C	Z .	3.64E03	NC.	<b>∑</b>	4.72E03	4.72E03	5 5	6.04E03	6.04E03	NCA	3.68E03	5.68E03
DIESELS	TURBO- CHARGED	NCA	Ϋ́	2	3.85802	3.85502	9.06F02	9.06E02	9.06E02	1.13503	1.13£03	1.13503	1.61203	1.61E03	1.61E03	1.61503	2.03603	2.03E03	2.03503	2.95503	2.95E03	2.95E03	4.04E03	4.04503	4.04E03	5.24E03	5.24E03	5.24E03	5.24E03	6.71503	6.71E03	6.71E03	6.31E04	6. 11504	6.31E04
	COMBONIDED	NCA	Ž	<u>چ</u>	<u> </u>	Ş	<u>ځ</u> ځ	MCA	<u>Ş</u>	<u>5</u>	Ş	<u>ح</u>	<u> </u>	Ş	Ş	<b>∑</b>	25.	2.03E03	2.03E03	<b>5</b>	2.95E03	2.95E03	KCA ,	4.04503	4.04E03	Ş	5.24E03	5.24E03	5.24E03	6 71503	6.71E03	6.71E03	6.31E04	6.31504	6.31E04
	OPEN-CYCLE NON-RECENERATIVE	NCA NCA	5	<u> </u>	្ត្	Ş	<u> </u>	Ş	<u>Ş</u> Ş	<b>≨</b>	5	<b>5</b> 5	<u>ح</u>	<b>≨</b>	<u>چ</u>	67.9	<u>ئ</u> ي	§ §	105	<b>5</b>	2 6 E	219	3.88502	1.88F02	3.88E02	5.66E02	5.66E02	5.66E02	5.66E02	7.70502	7.70E02	7.70E02	6.63E03	6.63503	6.63E03
CAS' TURBINES	CACLE	NCA NCA	2	្ត្	វ្ត	ž	Ş	MC.	<u>Ş</u>	រួ	¥C.	<b>∑</b>	5 5	§ §	5	<u>Ş</u>	<u> </u>	5 5	Ž	5	<u> </u>	KCA K	<u>ک</u>		<u>Ş</u>	Ž	MCA	<b>∑</b>	٧ ک	Y. Y.	9.01502	9.61502	NCA	8. 29503	8.29E03
S. C. S.	OPEN-CYCLE PECENERATIVE	25	5	5	្ត្	5	<u> </u>	MC.	5	\ \frac{1}{2}	ర్జ	<u>ک</u>	<u>ا</u>	5	HCA.	<u>ح</u>	<u> </u>	1=	115	<b>S</b>	7 17 Z	241	<b>5</b>	5,5	428	5	Ş	623	623	٠	177	847	7.32E03	7. 32503	7. 32E03
	#YZA	1980	1990	2000	1980 1985	1990	2000	1985	1990	1980	1965	1990	2000	1985	1990	2000	1980	1990	-	1980		÷		661		1980	_			1990	66	2000	1980	1985	2000
	POWER OUTPUT LEVEL, KW	1.5			2.0		,	:		30.0	 }		5	3			0.00			250.0			500.0			750.0		_	-	0.0001		-	5000.0		

UNITS: ORDINAL,	
RAW MATERIALS	
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PHOTOV	TAIT TAIT	\$		~~~	~ ~ ~	~~~		v vv v	. v. v. v.	۰ گ <sup>۲</sup>	~ ~ ~ <del>\</del>	N N N N N	~ ~ \$ \$ ~ ~	NCA NCA NCA NCA
	SOLID	NCA NCA NCA	S NCA	<u>5</u> ~ 5	సైస్ట్లా	Y Y Y	νς NCA	វិស្តីស្គ	NCA NCA	<b>Y Y Y</b>	2222	NCA NCA NCA NCA	NCA NCA NCA	NCA NCA NCA NCA
FVEL CELLS	MOLTEN CARBONATE	YON NON	VC V	NC AC	Y Y Y	V V V	Y Y Z	Ž Ž	V V V	NCA NCA	Ž~~Ž	S S S S	A N A A	NCA NCA NCA S
<u>=</u>	VCID BHOSBHOWIC	NCA 5 5	~ Z	N N N N	w w w	NCA S S	. NCA	~ ~ ~	NCA S S	S NCA	<b>၌</b> 5 5 5 5	S S S S	S S S S	NCA NCA
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) Nr.iS	KINEMYLIC	ZZ Z	~ 5 5	~ ~ <u>Ş</u>	స్ట్రా	సైస్ట్గ	~ \\	, ν ν	NCA NCA N	∽ Š	5 5	~ ~ V V	N N N N	NCA NCA NCA
STIRLINGS	TREE PISTON	NCA NCA	∽ V V	v v Š	N N N	Y Y Y	V V V	<b>Y Y</b>	\$ \$ \$ \$	<u> </u>	<u> </u>		ខ្មុំខ្មុំខ្	NCA NCA NCA NCA
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DIESELS	TURBO-	7 7 Y	ភ្នំ » »		N N N	n n n	<b>~</b> ~ ~	, iv. iv.	on on on	n n n	, w w w w	W W W W W	. w w w w	~ ~ ~ ~ ~ ~ ~ ~
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	OPEN-CYCLE NON-RECENERATIVE	* * * * * * * * * * * * * * * * * * *	<b>5</b> 5 5	<b>5</b> 5 5	555	555 225	5 5 5 2 2 5	NCA 5	ŞŞ.s.	ς VCA	โพพพพ		~ ~ ~ ~ ~	n nnn
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3,45	OPEH-CYCLE OPEH-CYCLE	NCA NCA NCA	<b>ភ្</b> ក្ខុស្គ	5 5 5 S	5 5 5	5 5 5 N X X	222	V V	<u> </u>	ر الإ الإ	5 n n 2 2	~ ~ <u>Ş</u> <u>Ş</u>	v v Kr v	~~~~
	AASY	1980 1985 1990	2000 1980	1990 2000 1980	1985 1990 2000	1980 1985 1990	2000 1980	2000	1980 1985 1990	2000	1990 2000 1980	1990 2000 1980 1985	1990 2000 1980 1985	2000 1980 1985 2000
	LEVEL, KW	1.5	8.0	20.0		9.0	0.09		100.0	250.0	500.0	750.0	0.0001	0.000.0

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UT UNIV 1	VERTICAL AXIS	2	5	7 7	2	7	NCA NCA	,	. 7	NC.	7	7	χ	<u>ځ</u>	~ ~	MCA	Ž Ž	<u>ځ</u>	MC.	Ş	<b>Y Y</b>	<u>Ş</u>	NCA	YCA X	کِ کِ	NC.	NCA	NCA	Š	Z Z	NCA NCA	NCA	NCA NCA	NCA
	ънотоси <i>Ентс</i> иг	NCA NCA	Ž	∽ <u>ຊ</u>	Ş	ర్హ 	5	\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \	<u></u> ~	NC.	5 <u>5</u>	ļ ~	¥Ç.	Y Y	<u> </u>	Ş	<u>Ş</u>	خ خ د ع	V)	NCA	Š	<u></u>	Š	NCA NCA	אַנאַ אַנאַ	NCA	NCA	NCA	NCA S	Z Z	NC S	NCA	V V	NCA
PHOTOVOLTAICS	COOLED	3	<b>.</b>	<b>~</b> ~	m (	<b>n</b> m	m (	<b>-</b>	· m	m (	n ~	· m	NCA	m •	- m	NC.	<b>~</b> ·	- m	NC.	m (	~ ~	V.	Š	m ~	Y.V	Š	<u>س</u>	٣	Ş	<u>ک</u> ک	<u></u>	NCA	S S	NCA
PHOTOV	1 <b>6.1</b> 7 316.19	m m	<b>.</b>	<b>1</b> m	m (	n m	Б.	n en	. ~	m (	~ ~		<del>с</del>	· ·	· ~	<u>«</u>	m -	· ~	Š		m r	\ <u>\</u>	۳.	m r	\ <u>\</u>	NCA	_	~	Š	٧ کو	۰.	NCA	NCA NCA	3
	POLYMER	NCA	NCA.	<b>,</b> 5ૂ	NCA NCA	٠ 4	NC.	<u> </u>	4	NC.	\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \	4	NCA	<u>ح</u>	ַבַּ	NC	<u>ک</u> ک	ַבְּי	Ş	MCA.	Y S	ទ្ធ	MCA	Y CY	<u>ح</u>	NC.	NCA	NCA	YC.	Y S	Z Z	NCA	N CA	NCA
MEL CELLS	HOLTEN	NCA	. VON	ŞŞ	<u>ک</u> ک	NC A	NCA	NC A	Ş	YCA MCA	Ş	<b>₹</b>	Ž,	<u>د</u> ک	NC N	YC N	<u> </u>	<u> </u>	Σ	Ş	4 4	, స్ట	NCA	4 4	, ACA	NCA	NC.	7	NC.	NC.A	ءِ ح	NCA	Z S	MCA 4
ī	VCID LHOSEHONIC	NCA 4	44	• 5 <u>x</u>	4.	<b>3 4</b>	NCA.	3 -3	4	Ž,	7 -7	4	Ą.	<b>3</b> 4	. 4	NCA	4	. 4	Ş	NCA	<b>3</b> •	- Ş	NCA	4 -	7 Z	NC.	-3	4	SC.	NCA.	<b>3</b> -3	NCA	NCA V	7 7
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S S	KINEWYLIC	NCA NCA	4 4	, <u>Ş</u>	<b>∑</b> .	•	<u>ک</u>	٠ آ	4	NCA NCA	Į 4	4	NC.	Ş,	, 4	Ş	<u>უ</u> ,	. 4	MC.	న్త.	<b>4</b> 4	NC.	Š	4 4	, Y	MCA	NCA	4	YC.	Y S	- -	NCA	NCA NCA	Z Z
STIRL	MOTEI 4	NCA NCA	4 4	NC.	<u>ک</u> .	. 4	<b>5</b> 5	<u> </u>	4	ζ.	Ş	NC.	<u>ح</u>	<u> </u>	Ş	<u>ک</u> ک	ទ្ធ	<b>∑</b>	<u>Ş</u>	<u> </u>	<u> </u>	₹ N	<u>ა</u>	<u> </u>	NC.	NCA	NCA.	NC.	Y 5	֖֓֞֞֟֓֓֓֓֓֓֟֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓	NCA	NCA	NCA NCA	NCA
	ADIABATIC	NCA	<b>5</b> 5	MC.	<u>ئ</u>	<u>Ş</u>	<u>ځ</u>	<b>∑</b>	Y C	<u>5</u> 5	<u>ځ</u>	¥Ç	<u>ئ</u> پ	\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \	5	<u>ح</u>	<u> </u>	Š	₹Ç	<b>∑</b>	~ ~	Ž	<b>∑</b>	m ~	ر م	ζ.		_	YCA S	NCA	~ ~	NCA	VCA	3
DIESELS	TURBO- CHARGED	NC.	Z Z		~ ~		m -	n m	<b>с</b>	m ~		3	m (	n (*	, ~	۳,	m ~		<u>س</u>	m r	· ~		۰ ۳	<b>-</b> (-	. ~	3	<u> </u>	_	~	m (	٠.	_	٠ .	3
	TURBO- COMPOUNDED	NCA	ភ្នំ ភ្ន	Ž	<u> </u>	Ş	<u> </u>	5	Y C	<u> </u>	MC.	SZ.	<u>ئ</u> پ	<u>ئ</u> ک	NCA	Ş	m ~	- m	<u>Ş</u>	m (	n ~	YC.	~	- ·	, <u>Ş</u>	6	6	~	Ŋ,	۰ -	· m	NCA	m ~	
	OPEN-CYCLE NON-RECENERATIVE	KCA KCA	្ត្	NC NC	<u> </u>	5	<u>ئ</u> ک	Ş	MC.	5 5 E X	V.	<u>ئ</u> ک	<u> </u>	V.	<u> </u>	Ş	<u>ځ</u> -	. ~	\$	<b>≨</b> ∗	۰ ۳		<u> </u>	~ ~	۰.				<u> </u>	٠.	. ~		۰.	3
CAS TURBINES	CICSED	NCA NCA	<u> </u>	5	<u> </u>	MCA	<b>5</b> 5	Ş	<b>5</b>	<b>5 5</b>	<b>Ş</b>	<u>Ş</u>	<u>5</u>	<b>\$</b> \$	Š	5	<u> </u>	<u>Ş</u>	Ş	Y S	ָלָ בָּ	NC.	Z Z	<u> </u>	<b>5</b> 5	MCA	MCA	<b>Y</b> C	¥C¥	m (	, m	NCA	~ ~	3
S.Y.S	OPEN-CYCLE RECENERATIVE	25	<u> </u>	Y S	ខ្ម	\$	<u> </u>	5	WCA.	<u> </u>	¥CA	5	Ž,	5	NC.	2	<u>.</u>		¥Ç	<u>ځ</u> ،	٦ -	NC.	<u>ځ</u>	ς,	~ <u>Ş</u>	Ş		3	<u>ځ</u>	<u> </u>		_	<b>с</b> с	3
	YEAR	1980 1985	2000	986	1985	2000	1980	1990	2000	1980	1980	2000	1980	1960	2000	1980	1985	2000	1980	1985	2000	1980	1985	980	1980	1985	1990	2000	1980	1985	2000	1980	1985	2000
	LEVEL, KW POWER OUTPUT	1.5		5.0			20.0			0.0			0.09	-		100.0	-		250.0	•••		500.0			750.0				0.000			5000.0		

PARAMETER: ENVINONMENTAL CONSTRAINTS UNITS: ORDINAL, 1-5

SOUTH PRODUCTION NOTICES NOTICES (CERTIFIED SECURIOS)

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TUKBINES	HORIZONTAL SIKA	\$ 5	~ ~	٠. ٠.	~ ~ ~	· <b>~</b> ·	n vo	<b>~</b> ~	٠,٠,٠	^ ~	۰,	ر د د	· ~	۰,	^ <b>•</b> ^	~	~ ~	· v	~ <del>\</del>	2	<u>ب</u>	\ <u>\S</u>	. 5	٠, ١	Y V	NCA	<b>د</b> د	\ <u>\</u>	NCA NCA	NCA
al only	VERTICAL AXIS	559	n in i	^ ^	~ ~	NCA ~	· • •	\ <u>\</u>	۰ د	~ ·	Ş	<u>ځ</u> پ	· •	Y CY	ž	٠,	<u> </u>	NCA	<u> </u>	YC.	NCA NCA	<u>د</u> ک	NCA	NCA NCA	Y Y	NCA	<u>ځ</u> ځ	NCA	NCA NCA	NCA
	РНОТОСИЕМІСАЕ	NCA NCA	<b>క్త</b> ∽	న్ల స్ట	کر م	S S	<u> </u>	ς δ	<b>Y</b> S	§ .	NC.	<u> </u>	NC.	ŽŽ	S S	Ş	<u> </u>	NC.	<u>خ</u> کِ	Ş	Y S	<u> </u>	NCA NCA	V S	Š	NCA	V C	NCA	NCA	NCA
PHOTOVOLTAICS	COOLED ACTIVELY	5 5 5	~ · · ·	~ v	N N	v v		^ ·^	· ^ ·	- v	Š	~ ·	~	NC.	· ·	۰,	<u>ر</u>	· v	ر پر	Ş.	<b>د</b> د	, Ž	¥Ç.	<b>د</b> د	, <u>Ş</u>	NC.	V.	, VQ	NC.	NCA
Volond	TAJT STAJT	. 5 5	~ ~		· ~ ~	· v ·	n vo	٠ د د	· v.	^ v	· ~		· ·	٠,	^ •	S	Ž ,	'n	2 NC	5	· · ·	^ Z	NC.	۰.	^ ¥7	Ş N	۰.	^ NC	NCA 100	»ca S
	POLYMER	NCA	<u>\$</u> ~ [	<u> </u>	NCA ~	NCA NCA	\ \ <u>\</u>	ر الرك	NC.	٠ <b>٢</b>	NC.	<b>5</b> 5	NCA NC	Y C	វ្ន	NCA	<u> </u>	N N	אַנאַ אַנאַ	Z N	V S	Z Z	Y.	NCA Sign	֓֞֝֞֝֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓	<b>∑</b>	NCA NCA	<u>د</u> ک	NCA	NCA
PIEL CELLS	CARBONATE	V 200	5 5 E	Ş Ş Q	<b>Ž</b> Ž	Š Š	Ž,	ŞŞ	NCA NCA	<b>≨</b>	NCA	돌 호	¥C¥	NCA NCA	<u> </u>	NCA	ַלֻ בַּ	5	~ Z	KCA K	۰,	∽ ¥C	Ş	NCA.	^ 2	NC.	Ŋ.	ر پرک	NCA 103	M.A S
_	PHOSPHORIC	NCA 5	יט יט	Ž~		NCA V	ימי	ر الار	un u	n v1	Ş.	ر د د	ייי	NC.	· •	S	Y S	2	۰ م	Ş	<b>ب</b> ب	ر ال	NCA	۰ د	ر کا	NC.	<u>د</u> د	<u>ک</u>	NCA CA	ر د
ORCS		S	^ v^ i	y y	<b>'</b>	v .c	, v, ı	^ v	N I	· ·	٠ ٧	v .v	Ś	اد ده	· •	۰ د	۰ ۰	· •	^ v	Ś	<b>ب</b> د	, v	٥	<b>د</b> د	۰ ۰		so s	) W	<i>د</i> د	5
SUNCE	KINEMVLIC	NCA	~ ~ j	Š Š	~ ·	NCA NCA	5 .	S S	Ŋ,	n v	NCA	Ş.,	· ~	NCA	ر ا	'n	5 5 2 2	5	ر الم	5 ₹	'n	م ک <u>ر</u>	Ş	<u>چ</u> .	^ \$	Ş	<u>Ş</u> .	- Ω	NCA	NCA NCA
STIRLINGS	3344 MOT219	NCA NCA	in in	<u>Ş</u> <u>Ş</u>	~ ~	NCA	NC.	ر الإ	V CV	NCA	NCA NCA	¥Ç ¥	NCA	<u>ک</u> ک	Ş	<u>ა</u>	<u>Ş</u>	NCA S	<u>န</u> ် နွှဲ	MC.	Ş Ş	Ş Ş	Ş	<b>5</b> 5	§ 5	NCA	NCA NCA	YCY MCV	V V	NCA
	ADIABATIC	NCA NCA NCA	NCA S	NCA NCA	<b>5</b> 5	NCA NCA	NCA NCA	NCA	MCA NCA	Z X	NCA NCA	<u>ح</u> کے کے	NCA	<u>ځ</u> کړ	Š	NC.	<u> </u>	4	٠ د د	2	4	3 C	Ş	<b>4</b> ·	4 Z	స్ట	4.	<b>₹</b>	NCA	7 7
DIESELS	TURBO- CHARGED	NCA NCA NCA	រ្តី ស្ន	44	44	7 7	4	3 4	4 4	4	4.	<b>3</b> - <b>3</b>	7	4 4	• •	4	<b>4</b> 4	• •	4 4	4	4.	7 -9	. 4	4.	<b>3</b> 4	. 4	4 -	1 4	<b>.</b>	1 7
	COMPOUNDED	NCA NCA NCA	S S S	<u> </u>	NC.	NCA NCA	ý ý	<u>Ş</u>	NCA NCA	NCA	NCA	<u> </u>	NCA	NC.	<b>3</b> - <b>3</b>	4	<b>Ş</b> •	4	<b>7</b>	4	4	, <u>(</u>	4	4.	7 Y	4	4 4	, <u>Ş</u>	* *	, 4
	NON-RECENERATIVE	NCA NCA NCA	2 2	Ş	<u> </u>	Ž Ž	NCA NCA	<b>Y</b>	Y CY	NCA	Š	<b>1</b>	4	NCA NCA	§ 4	4	<u> </u>	4	4 4	• •	4.	3 4	• •	<b>4</b>	<b>3</b> 4	. 4	4.	• •	4.	<b>3</b>
CAS TURBINES	CYCLE	NCA NCA	វត្ត	រុទ្ធ	Ž Ž	<u>ე</u> ე	Y C	K Z	NCA L	§ 5	2	<u> </u>	<u>ک</u>	Z S	<b>≨</b> <u>5</u>	MCA	<u> </u>	MCA	<u>ک</u> ک	WCA.	KCA.	\ \{\frac{2}{2}}	MCA	NCA NCA	<u> </u>	ş 4	4.	y CA	4 4	3 7
SYS	RECENERATIVE OPEN-CYCLE	<b>55</b> 5 €	វត្ត	S S	ర్ల స్ట	<u> </u>	Y C	K Y	S S	¥Ç.	MCA MCA	¥ 4	¥Ç	<u>ک</u> ک	į .,	4	<u> </u>	4	4 2	Ş	4.	, <u>Ç</u>	Ş	4.		4	4.	. 4	<b>4</b> <	<b>.</b> 4
	YEAR	1980 1985	2000	1980 1985	1990 2000	1980	1990	1980	1985	2000	1980	1985	2000	1980	1990	2000	1980	1990	2000	1985	1990	0007	1985	1990	2000	1985	1990	1980	1985	2000
	LEVEL, KW POWZR OUTPUT	1.5		 		20.0		30.0			0.09			100.0			250.0		9	2	-	750.0	?		9	2.5		0.000		

LOCATION CONSTRAINTS INVITS: ORDINAL, 1-5

ALABA TERRETARIA MERCATURA MERCATURA MENANTARIA ZEREREZE FERRETARIA MENANTARIA MENANTARIA PERCENTIALE

TURBINES	HORIZONTAL AXIS		m m m m m		1 M M M M			<b>~∑</b> ~ ~ ~	<b>Ž</b> m n n	2 <b>V</b> C Y	NCA NCA NCA NCA
UT ONIN TU	VERTICAL AXIS		m m m m §		n n n N	Z ~ ~ Z Z	<u> </u>	<u> </u>	NCA NCA NCA NCA	NCA NCA	NCA NCA NCA NCA
		2 2 2 F	5 5 5 m 5	22 m	22 ~ 2	\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	<u> </u>	<u> </u>	NCA NCA	S S S S	NCA NCA NCA
PHOTOVOLTAICS	VCTIVELY		n m m m			ოოო <b>უ</b> ო	<u>รั</u>	~ <b>%</b> % ~ ~	NCA NCA 3 3 3 4 4	S S S	NCA NCA NCA
PHOTON	TATA PLATE		~ ~ ~ ~ ~		10000		ก ก <b>ฐ</b> ก ก	~ <b>Z</b>	NCA NCA 3	NCA 3 3 3 4 A	NCA NCA NCA 3
	POLYMER	NCA AN	NC A N	V V V	<b>5 7 2</b>	\$ \$ \$ \$ \$ \$	N N N N N	Z Z Z Z Z	NCA NCA	NC A CA	NCA NCA NCA
VEL CELLS	HOLTEN		\$ \$ \$ \$ \$ \$	<u> </u>	N N N N	Z Z Z Z Z Z Z Z Z Z Z Z Z Z Z Z Z Z Z	NCA NCA A	A ACA A	NCA NCA NCA	N N N N	NCA NCA NCA
-	VCID BHOSBHORIC	NCA 4 4 5	2 4 4 4 2	4 4 4 Z	NCA 4 4	4 4 4 ½ 4 ·	4 4 N A 4	4 A A A	ŽŽ44	Ş Ş	NCA 4
ORCS		~ ~ ~ ~ ~	1 W W W W	<b>~</b> ~ ~ ~ ~ ~	10 to 10 to 10	~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~		NNNNN	w w w w	. w w w	~~~
3 Mr.S	KINEHVLIC	MCA 4 4	Ş 4 4 Ş	Ž 4 4 Ž	7 4 4 V	Ž 4 4 Ž Ž.	* * 5 5 *	~ Š Š ~ <b>~</b>	A N N A	<b>5</b> 5 5 7	NCA NCA NCA
STIRL	FREE PESTON	NCA 4 4 4	Ž 4 4 Ž	2 2 4 2	<u> </u>	ខ្មុខ្មុខ្	<b>1</b>	ថ្ម ថ្ម ថ្ម ថ្ម	\$ \$ \$ \$ \$	2 2 2 2	NCA NCA NCA
	ADIAMATIC	NCA NCA NCA NCA NCA	\$ \$ \$ \$	ស្តី ស្តី ស្តី ស្តី ស្តី ស្តី	5 5 5 5 2 2 2 5	22223	\$ \$ \$ \$ c		N N N N N N N N N N N N N N N N N N N	<b>1</b>	ZZ ZZ E E
OTESELS	TURBO- CHARGED	72 Y 2 Y 2 Y 2 Y 2 Y 2 Y 2 Y 2 Y 2 Y 2 Y		m m m m		n m m m m				<b></b>	
	COMPOUNDED	NCA NCA NCA	V V V V	N N N N	5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	1	กก <b>ฐ</b> กก	- Y	<b>5</b> m m m	ฐีกกก	NCA 3 3
	NON-RECENERATIVE	YOU YOU	ភ្ ភ្ ភ្ ភ្	5 5 5 5 2 2 5 5	2525	\$ ~ \$ \$	~ ~ 52 52 ~	<b>~~~</b>		~ ~ ~ ~	
CAS TURBINES	CACEE CEOSED	10H 10H 10H	5555	2222	5555	2222	55555	55555 55555	NCA NCA	<u> </u>	NCA 3 3
**	PECENERATIVE OPEH-CYCLE	ភ្លួក ក្នុង ក្នុង ក្នុង ក្ខាង ក្នុង ក្ខាង ក្នុង ក្នង ក្នុង	<u> </u>	5 5 5 5 2 8 8 5	2222	រួក្ខភ្ជុំ	ก คอี อี ก	~ 2 2 c ~	3 2 KC	<b>2</b> 6666	
	YEAR	1960 2000 2000 2000 2000 2000 2000 2000 2	1985 2000 1980	1985 1990 2000 1980	1985 2000 11980	1990 2000 1980	2000 1980 1985	2000 1980 1985 2000	1980 1985 1990 2000	1980 1985 1990 2000	1980 1985 1990 2000
	POWER OUTPUT	1.5	20.0	30.0	60.0	100.0	250.0	\$00.0	750.0	1000.0	5000.0

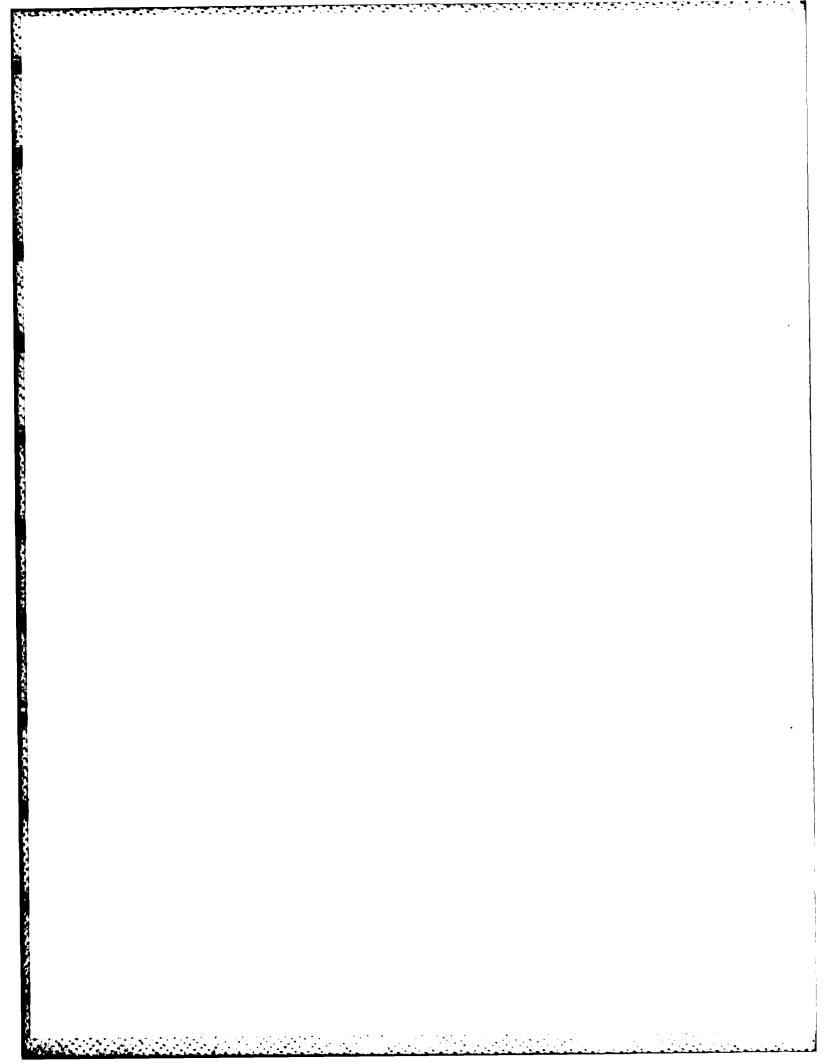
PARAMETER; OPERATIONAL CONSTRAINTS UNITS; ORDINAL: 1-5

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KBINES	SIXV SIXV	2	7 7	7 7	7	7 7	2 6	7 7	2 6	. ~	7 .	7 7	7	۰, د	۰ ،	7	7 7	7	2	7 7	Ş.	، 2	, 7	NC.	7 .	7 7	NCA	NCA V	7	NCA	Š Š	NCA
also to	VYRTICAL 81X-	2	7.7	~ ~	7	7 7	Ϋ́ς	7 77	2 70	2 إ	7 5	Y Y	Ş.	2 6	, <u>Ş</u>	NC.	<u>\$</u> ~	NCA	<u>Ş</u>	<u> </u>	NCA	Y C	ž ž	NCA	Y S	ž Ž	NCA	NCA 103	N S	NCA	NCA NCA	NCA
	РИОТОСИЕЖІ С <b>А</b> Е	NCA NCA	Ş	<b>√</b> 2 ×	NC.	<u>د</u> م	NCA NCA	<u>Ş</u> <u>Ş</u>	7 V	<u></u>	<u>ځ</u>	• XX	Ķ	Y S	Ş	NCA	<u> </u>	NC.	Š	کِ کِ	NCA	y y	N C	NCA	NC S	S S	Š	NCA NCA	S S	NCA	K &	N:A
40ToVol.TAICs	VCT1VELY	2	. 7	7 7	~ ~	7 7	~ :	, 7,	7 6	5	- 5	NC.	2	2 6	<u>ک</u>	7	7 7	Ş	۰ ۲	۰ ۲	NCA	۲ کو ۲	7 7	NC.	Š.	7 ~	NCA	NCA	2 2 2	NCA	NCA NCA	NCA
Votori	TLAT FLATE	2	. ~ .	7 7	71	7 7	۲ ر	100	7 7	7	، 2	7 7	~	7 ~	7	7	7 7	NCA	7	7 7	NCA.	2 6	7 7	NCA	NCA	٧ ٧	NCA	NCA	7 7	NCA	NCA NCA	2
	POLYMER SOLID	NCA	YÇ,	~ Z	NC.	۾ ڇ	Y S	<b>Ş</b> Ş,	, Š	<u> </u>	ہ پر <b>ک</b>	, <u>Ş</u>	NCA.	N CA	Ş	NCA NCA	S S	NCA	NCA	S S	NCA	NCA NCA	NCA	NCA	NCA	S S	NCA	NCA	NCA NCA	NCA	Y S NC	NCA
UEL CELLS	CARBONATE	NCA NCA	NCA .	Š Š	NCA NCA	NCA	Y Y	NCA	Š Š	ŊĊ	NCA NCA	NCA	NC.	Y Z	Z)	NCA	Š Š	NCA	NCA NCA	n m	NCA	NCA ,	n m	NCA	NCA S	٠ کا د	NC.	NCA	٠ پر	NCA	V V	3
<u>-</u>	PHOSPHORIC ACID	NCA 3	. m	, NCA	т.	<b>1</b> m	NCA	1 m	NCA		m ~	NCA	۳,	<b></b>	NCA.	г.	n m	NCA	NCA	~ ~	NCA	NCA	<b>-</b>	NCA	NCA.	m r	NCA.	NCA	J (C)	NCA	NCA 3	3
OKCS		2 2	2 0	7 7	7.5	7 7	۰ د	171	7 7	7	2 6	. ~	7 0	7 6	5	~ .	7 7	2	7 5	7 7	2	7 6	7 7	7	~ ~	, 7	7	۰ ر	7 7	7	7 7	2
N.S.	KINEMVLIC	NCA NCA	'n'n	NCA	NCA	· v	Y S	, v	NCA.	<b>5</b>	<b>د</b> د	NCA	<u>ئ</u>	^ v	NCA	NCA	n vo	NCA	YC.		NCA	<u>ځ</u> ک	· v	NCA	NCA NCA	ر ا	NCA	NCA	Š	NCA	NCA NCA	NCA
STIRL	TREE PISTON	NC.	ın ın	NCA	NCA 5	Ś	Y S	٠ ټو	NCA.	NCA	Y S	5	Ž,	<u> </u>	NCA	S S	ទ្ធ	NCA NCA	<u>د</u> ک	NCA	Y S	į	SC.	NC.	<u> </u>	Ş Ş	NCA	V S	S S	NCA NCA	NCA NCA	NCA
	ADIABATIC	NCA NCA	NCA NCA	Š	<u>ځ</u> ک	YC.	<u> </u>	NCA NCA	ž Ž	NC.	న్ల న	NC.	NC.	<u> </u>	Ş	NCA	<u> </u>	NCA	<u>Ş</u> -	. 4	NCA	၌ <u>\</u>	. 4	NC.	NC.	<b>7</b>	NCA	NCA NCA	. 4	NCA	NCA 4	7
DIESELS	TURBO- CHARGED	NC.	NCA NCA	Į .,	4 4	4	<b>3</b> - <b>3</b>	4.	1 4	4.	3 4	4	<b>4</b>	7 <b>4</b>	4	4 4	r •	4	4.	<b>4</b> 4	- 4	<b>.</b>	<b>4</b> 4	- 4	<b>.</b>	<b>3</b> 4	3-	4.	<b>3</b> 4	4	<b>4</b> 4	4
	COPPOUNDED TURBO-	NCA	NCA NCA	Ŋ	<u> </u>	NCA	<u>Ş</u> <u>Ş</u>	NCA NCA	Ş	MCA	្ត្	Ş	S S	Ş	5	4	4 4	<b>₹</b>	4.	<b>4</b> 4	MCA.	<b>.</b>	4 4	NCA	<b>3</b>	<b>4</b> <	٠ ک <u>د</u>	<b>3</b>	3 4	NCA	4 4	4
	OPEN-CYCLE NON-RECENERATIVE	NCA NCA	Ş Ş	NCA	<u> </u>	NCA NCA	រុំ	NC NC	KC I	Y S	S S	Z,	<u>Ş</u>	٠ کو ۲	<u>Ş</u>	NCA.	4 4	స్ట	Ş,	1 4	. 4	<b>4</b> ·	<b>3</b> 4	4	4	<b>3</b> 4	7	4	3 4	7	<b>3</b>	7
CAS TURBINES	CACLE	NCA	<u> </u>	Ş	<u> </u>	NCA	5 5	NCA NCA	Z Z	MCA	Z Z	5	NC.	\$ \$	Y.	MCA	ភ្នំ ភ្នំ	Ş	KCA KCA	\$ \$	MCA	K K	្ត្	<b>N</b> C	Ž	אַ טַאַ אַנ	Y.	4	<b>4</b> 4	NCA	4 4	4
.Y3	OPEN-CYCLE RECENERATIVE	NCA NCA	<u>5</u> 5	NCA	కై స్ట	NC.	Z Z	NCA	KC Y	NC.	<u>ک</u> ک	¥C.	Ş Ç	¥ 5	<u>Ş</u>	<u>ک</u>	4 4	NCA	Ŋ.	<b>*</b> 4	NCA	<u>ა</u>	<b>4</b> 4	, S	<u>5</u>	4 4	<u>ک</u>	4	<b>3</b>	4	4 4	7
	YEAR	1980 1985	1990	1980	1985	2000	1980	1990	1980	1985	2000	1980	1985	2000	1980	1985	2000 2000	1980	1985	2000	1980	1985	2000	1980	1985	1990	1980	1985	2000	1980	1985 1990	2000
	POWER, KW	1.5		5.0		,	20.0	-	30.0			0.09			100.0			250.0			500.0			750.0			0.0001			0.0000		

PARAMETER: THERMAL EMERCY AVAILABLE UNITS: ORDINAL, 1-5

ACCOL MANAGEM AND MANAGEM AND

TURBINES	HORIZOSTAL AXIS								호 <sup></sup>	<b>%</b> ~	NCA 1	NCA NCA NCA
SI GNIW	VERTICAL			NCA 1	NCA 1	NCA -	NCA NCA	V V V V	V V V V	N N N N N N N N N N N N N N N N N N N	S S S S	NCA NCA NCA
		సైస్ట్		222	~ 5 5 5 N S S	~ <u> </u>	<u> </u>		S S S S	<u> </u>	Z Z Z Z	NCA NCA NCA
PHOTOVOLFALCS	COOLED	m m m m				7 <b>4</b> 6 6 6	NC. 4	<b>%</b> 0 0 0	NCA NCA 3	NCA 3 3	NCA NCA	NCA NCA NCA NCA
PHOTOV	TAIT TAIT		·					NC - 1 - 7	MCA	NCA NCA 1	× %	NCA NCA NCA
	POLYMER	NCA NCA NCA	NCA NCA NCA	NCA NCA	NCA NCA	NCA NC	<b>1</b>	NCA NCA	Y Y Y Y	VCV NCV	A A A A C	NCA NCA NCA
FIEL CELLS	MOLTEN CARBONATE	VON NOW	NCA NCA	NC V CV	S S S S	\$ \$ \$ \$ \$	\$ \$ \$ \$ \$ \$ \$ \$	NCA NCA	N	N CA	NCA NCA NCA	NCA NCA 5
E	VCID BHOSBHOKIC	NCA B B B	J. m m m	, Augus	าฐาก	NG W U	, A	NCA NCA	A S E E	<b>55</b>	NCA U D	NCA 3 3
OKCS		2222	10000	1000		4000	0000	0000	<b>0000</b>	2222	~ ~ ~ ~	2222
S: 22	KINEWVIIC	NCA NCA	NCA NCA	NCA NC	NCA NCA 2	NG V	NCA NCA	NCA NCA	NCA NCA	NCA NCA NCA	NCA NCA NCA	NCA NCA NCA
STIRLINGS	FILE	NCA NCA 2 2	\$ \$ ~ ~	Z Z Z	Z V V V V	5 5 5 5 5 2 2 2 5 5	2222	Z Z Z Z Z Z Z Z Z Z Z Z	Z Z Z Z	NCA NCA	NCA NCA	NCA NCA NCA
	ADIABATIC	NCA NCA NCA	NCA NC	Z Z Z	NC NC N		V V V V	NCA NCA NCA	NCA A 4	5 5 4 4	Ş Ş 7 7	NCA ACA 4
DIESELS	TURBO- CHARGED	NCA NCA									m m m m	
	COMBONDED LINKBO-	NCA NCA NCA	2 2 2 2	222	NCA NCA	\$ \$ \$ \$ \$	5000	\$ 0 0 0	#C <b>Z</b>	70 0 0	NC 7 7 7	NCA 2 2 2 2
	OPEH-CYCLE NON-RECENERATIVE	YCY YCY	<u> </u>	្ត្ <b>ត្</b> ្	5555	222	ŽŽ~~	A A A A	~ ~ ~ ~ ~	N IN IN IN	N N N N	8888
TURBINES	CACTE CIOSED	5	NCA NCA		2222	2222		Y V Y Y	Y V V V	MCA MCA MCA	NC 7 7 7	NCA 2 2 2
S.Y.	OPEN-CYCLE RECENERATIVE	5555 8885	2 2 2 2 2 2 2 2 2	222	Z Z Z Z		วีวี ๓๓	ν χ χ m n		N N N N N	M M M M M	
	AASY	1980 1985 1990 2000	1980 1985 1990	1980 1985 1990	1980 1985 1990	2000 1980 1985 1990	1980 1990 2000	1980 1990 2000	1985 1985 1990	1980 1985 1990 2000	1980 1985 1990 2000	1980 1985 1990 2000
	FEAST' KH DOMEN ONIBRE	1.5	5.0	20.0	30.0	0.09	100.0	250.0	500.0	750.0	1000.0	9000.0



## BATTERY PARAMETERS

Because the batteries are modular, the parameter values are presented on a per kilowatt-hour basis where appropriate. The batteries supply dc power as output. A complete charge/discharge cycle is assumed to occur twice per day with a total discharge time of 16 hours. The batteries operate 365 days per year.

Certain parameters for the energy converson technologies are not directly applicable to the battery technologies:

- Annual fuel consumption becomes electricity required for charging.
- Annual fuel cost becomes annual cost of electricity for charging.

The following parameters were excluded from the battery paramenter survey because their values were the same for all of the batteries and therefore do no affect the decision as to the best technology for any given application.

- Charge time
- Discharge time
- Fuel capability
- Operational constraints.

xed (F)		
le (I)/ Fi	Redox Cr-Fe	NCA NCA
ansportab apacity)	bead bicA	EEEE
UNITS:Mobile (M)/Transportable (T)/ Fixed (F)  (at 1 kWhr capacity)	S/BN	NCA NCA M
UNITS:Mob	Li-Al/FeS <sub>2</sub>	NCA M M M
	N1/Fe	NCA M M M
	Z18/nZ	NCA NCA
R: TYPE	Zu/cJ <sup>Z</sup>	NCA NCA NCA
PARAMETER:	YEAR	1980 1985 1990 2000

PARAMETER: System Acquisition Cost

CONTRACT CONTRACT CONTRACT CONTRACT CONTRACT CONTRACTOR ASSESSMENT CONTRACTOR CONTRACTOR

UNITS: 1980 Dollars/ kWhr capacity

# # # # # # # # # # # # # # # # # # #	H1/7e L1-41/7e52 lb/3 Lead Ac1de Redon Cr-Fe	NCA NCA 1.83E02 NCA	1.35E02 9.76E01 NCA 1.24E02 NCA	1.35E02 9.76E01 8.66E01 1.18E02 7.58E01	.29E02   9.26E01   8.26E01   1.18E02   7.20E01	
	Za/br <sub>2</sub> H1/Pe	NCA		[		
	2a/C1 <sub>2</sub>	NCA	NCA	9.60E01	8.66E01	
jo 1	est N	198ò	1985	1990	2000	

PARAMETER: Acquisition Cost (ex. B.O.P.)

UNITS: 1980 Dollars/kWhr capacity

lo Ti				56 64 65 66 66 64 64 66	u		
Yea V	2n/c12	Za/br <sub>2</sub>	#1/7*	11-41/7052	Pb/8	Lond Acids	Redox Cr-Fe
1980	NCA	NCA	NCA	NCA	NCA	1.23 <u>E</u> 02	NCA
1985	NCA	NCA	9.0E01	6.48E01	NCA	8.26E01	NCA
1990	6.42E01	4.38E01	9.00E01	6.48E01	5.80E01	7.84E01	5.06E01
2000	5:76E01	4.16E01	8.58E01	6.16E01	5.50E01	7,84E01	4.80E01

PARAMETER: Annual Operations and Maintenance Cost

control approved apparent amounts, seems

UNITS: 1980 Dollars/Year per kWhr capacity

Sulav Coo
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	Redox Cr-Fe	NCA NCA 75.0 78.8
	bead btoA	79.0 82.0 82.0 83.0
	S/BN	NCA NCA 82.5 84.0
	Li-Al/FeS <sub>2</sub>	NCA 75.0 75.0 82.0
	94/1º	NCA 65.0 65.0 68.3
	Z <sup>18</sup> /n <sup>Z</sup>	NCA NCA 71.8 75.4
	zu/c1	NCA NCA 79.4 83.4
,	YEAR	1980 1985 1990 2000

PER CENT

UNITS:

PARAMETER: EFFICIENCY

	Redox Cr-Fe	NCA NCA 20.0
	Lead	6.85E-01 1.23 1.29 1.36
YEARS	s/#n	NCA NCA 2.30 3.59
UNITS:	rt-vj\res <sup>5</sup>	NCA 1.37 2.74 4.11
	N1/Fe	NCA 2.40 2.74 2.80
<b>X</b>	Z <sup>18/nZ</sup>	NCA NCA 3.00 3.00
R: LIFETIME	Zu/cJ	NCA NCA 3.08 3.08
Parameter:	<b>XEV</b> E	1980 1985 1990 2000

TORRES AROBOTES ANDROLLA PROGRAMA SOCIODAS SECONARIOS ESPACIONES EXTRACTOR CONTROLES SECONARIOS SECONARIOS NOS

PARAMETER: Annual Electricity Required for Charging

gradin addition to several description restricted representations and the several property several restriction and the several several restriction and the several restric

UNITS: kWhr

24/c1 <sub>2</sub> NCA NCA 02E+03 73E+02
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PARAMETER: Annual Cost of Electricity Required for Charging (Constant)

UNITS: 1980 Dollars

			_	_	,	
	Redox Cr-Fe	NCA	NCA	3.02E01	2.87E+01	
	Load Acido	1.62E01	2.76E01	2.76E01	2.73E01	
•	<b>10</b> /8	NCA	NCA	2.74E01	2.69E01	
   	L1-41/P052	NCA	3.02E01	3.02E01	2.76E01	
	HS/Pe	NCA	3.48E01	3.48E01	3.31E01	
	2a/8r <sub>2</sub>	NCA	NCA	3.15E01	3.00E01	
	Za/C12	NCA	NCA	2.85E01	2.71E01	
it of		1980	1985	1990	2000	

PARAMETER: Annual Cost of Electricity Required for Charging (5%)

UNITS: 1980 Dollars

jo 1					4		
B9Y BV	Zn/C12	24/5r2	#1/7e	L1-41/7052	8/°%	Leed Acids	Redox Cr-Fe
198ņ	NCA	NCA	NCA	NCA	NCA	2.86E01	NCA
1985	NCA	NCA	4.44E01	3.85E01	NCA	3.52E01	NCA
1990	4.65E01	5.14E01	5.68E01 4.92E01	4.92E01	4.47E01	4.50E01	4.92E01
2000	7.21E01	7.97E01	8.80E01	7.33E01	7.16E01	7.24E01	7.63E01
							_

PARAMETER: Annual Cost of Electricity Required for Charging (10%)

UNITS: 1980 Dollars

chons asserbated assistance that their a conserva-

		_	_		<b>-</b>	_
	Redox Cr-Fe		NCA	7.83F01	1.94E02	
	Lead Acids	10467 6	4.44E01	7.16E01	1.84E02	
•	\$/ <b>9</b>	NCA	VON.	7.12E01	1.82E02	
	11-41/7052	NCA	4.86F01	7.83E01	1.86E02	
	BS/70	NCA	5.60E01	9.03E01	2.23E02	
•	Za/br <sub>2</sub>	NCA	NCA	8.18E01	2,20E02	
	Zn/C1 <sub>2</sub>	NCA	NCA	7.40E01	1.83E02	_
lo 18		1980	1985	1990	7000	-

PARAMETER: Life-Cycle Cost

UNITS: 1980 \$ per kWhr

NCA NCA NCA NCA NCA NCA 3.64E-02 5.98E-02 4.62E-02	-
NCA NCA NCA NCA NCA NCA NCA 6.39E-02 6.70E-02 3.64E-02 5.98E-02 4.62E-02	Na/S Lead Acide
NCA 6.39E-02 6.70E-02 3.64E-02 5.98E-02 4.62E-02	NCA 1.80E-01 NCA
3.64E-02 5.98E-02 4.62E-02	NCA 8.48E-02 NCA
20 T// C CC T// 3 CC T// C	4.49E-02 7.89E-02 2.59E-02
E-02   3.46E-02   3.65E-02   3.66E-02   3.	3.57E-02 7.59E-02 2.46E-02

PARAMETER: Life-Cycle Cost (5%)

UNITS: 1980 Dollars per kWhr

rot Lot					<b>s</b>		
B9Y BV	Zu/c12	Za/Br <sub>2</sub>	•4/18	L1-41/Pe52	8/m	Land Acido	Redox Cr-Fe
1980	NCA	NCA	NCA	NCA	NCA	1.95E-01	NCA
1985	NCA	NCA	8.23E-02	8.29E-02	NCA	9.94E-02	NCA
1990	6.64E-02	6.28E-02	8.90E-02	7.15E-02	6.79E-02	1.02E-01	5.11E-02
2000	8.61E-02	8.66E-02	1.14E-01	8.44E-02	8.24E-02	1.23E-01	7.43E-02

PARAMETER: Life-Cycle Cost (10%)

UNITS: 1980 Dollars per kWhr

jo 1				M P4	40		
soy av	Zn/C12	20/052	m1/7e	L1-41/F05 <sub>2</sub>	16/8	Lond Acids	Redox Cr-Fe
1980	NCA	NCA	NCA	NCA	NCA	2.17E-01	NCA
1985	NCA	NCA	1.20E-01	1.16E-01	NCA	1.30E-01	NCA
1990	1.27E-01	1.30E-01	1.63E-01	1.36E-01	1.26E-01	1.61E-01	1.16E-01
2000	2.74E-01	2.94E-01	3.43E-01	2,75E-01	2.69E-01	3.12E-01	2.73E-01

PARAMETER: Volume

UNITS: Cubic feet/kWhr capacity

<del></del>			_	_	_	-
	Redox Cr-Fe	NCA	NCA	29*9	29.9	
	Lond Acids	9.10	9.10	9.10	9.10	
<b>a</b>	8/9	NCA	NCA	5.26	5.26	
# # #	14-41/7062	NCA	2.13	2.13	2.13	
	94/50	NCA	4.88	4.88	4.88	
	Za/hr.	NCA	MCA	2.44	2.44	
	2n/cn <sub>2</sub>	MCA	MCA	4.55	4.55	
itue 12 of	PA	1980	1985	1990	2000	

PARAMETER: Volume (ex. B.O.P.)

UNITS: Cubic feet/kWhr capacity

on Tr				# **	us _		
Yes V	2n/c1 <sub>2</sub>	2a/br <sub>2</sub>	81/Pe	11-41/7eS2	8/9	Land Acids	Redon Cr-Fe
1980	NCA	NCA	NCA	NCA	NCA	7.14E-01	NCA
1985	NCA	NCA	3.83E-01	1.79E-01	·NCA	7.14E-01	NCA
1990	1,30	1.19	3.83E-01	1.79E-01	1.44E-01	7.14E-01	2.0CE-02
2000	1.30	1.19	3.83E-01	1.79E-01	1.44E-01	7.14E-01	2.00E-02
							_

PARAMETER: Area

STATE OF STA

UNITS: Square feet/kWhr capacity

•	·		4 + + + + + + + + + + + + + + + + + + +	w		
	Za/8r2	#1/Pe	L1-41/Pes <sub>2</sub>	<b>16</b> /5	Land Acids	Redox Cr-Fe
	NCA	NCA	NCA	NCA	7.0E-01	NCA
	NCA	8.14E-01	3.79E-01	NCA	7.0E-01	NCA
01 2	.50E-01	8.14E-01	3.79E-01	5.21E-01	7.0E-01	5.06E-01
01 2	2.50E-01	8.14E-01	3.79E-01	5.21E-01	7.0E-01	5.06E-01

PARAMETER: Area (ex. B.O.P.)

CONTROL SANGERS. CONTRACTOR.

UNITS: Square feet/kWhr capacity

or of							
Ye.	2a/C1 <sub>2</sub>	2a/br <sub>2</sub>	81/7•	L1-41/Fes <sub>2</sub>	S/ <b>91</b>	Land Acido	Redon Cr-Fe
1980	NCA	NCA	NCA	NCA	NCA	2.46E-01	NCA
1985	NCA	NCA	4.01E-01	1.92E-01	NCA	2.46E-01	NCA
1990	1.33E-01	1.33E-01	4.01E-01	1.92E-01	1.10E-01	2.46E-01	7.37E-02
2000	1.33E-01	1.33E-01	4.01E-01	1.92E-01	1.10E-01	2.46E-01	7.37E-02

PARAMETER: Weight

HARRY THE TOTAL THE THE THE TANK THE THE THE TANK THE TAN

UNITS: Pounds/kWhr capacity

Year of Sulav				4 7 8 8 8			
	2,,,,,,	2,00/00		LI-41/7052	10/5	Lead Acids	Redox Cr-Fe
198'n	NCA	NCA	NCA	NCA	NCA	9.80E01	NCA
1985	NCA	NCA	5.62E01	2.60E01	NCA	7.36E01	NCA
1990	2.61E01	4.05E01	5.32E01	2.54E01	3.44E01	6.76E01	3.60E01
2000	2.44E01	4.05E01	4.89E01	2.36Eol	2.83E01	6.28E01	3.60E01

PARAMETER: Weight (ex. B.O.P.)

UNITS: Pounds/kWhr capacity

io 18.		•	•		44		
	2n/C1 <sub>2</sub>	2a/br <sub>2</sub>	B1/Pe	15-41/7-62	s/ <b>4</b>	Lond Acids	Redon Cr-Fe
<b>198</b> 0	NCA	NCA	NCA	NCA	NCA	8 16501	70%
1985	NCA	NCA	4.68E01	2.18E01	NCA	6 12F01	N.C.
1990	2.18E01	3.38E01	4.44E01	2.12E01	2.86E01	5.64501	3 00501
2000	2.04E01	3.38E01	4.08E01	1.97E01	2.36E01	5.24E01	3 00E01
-							7.777

Redox Cr-Fe N N N N Lead Acid UNITS: Ordinal; 1-5 NCA NCA 4 S/BN ri-vi/Les<sup>5</sup> NC 4 4 N1/Fe Zu/gr **รัฐ**กก PARAMETER: RAW MATERIALS z<sub>r/cJ</sub> **รัฐ**กก YEAR 1980 1985 1990 2000

PARAMETER: Reliability

UNITS: Ordinal; 1-5

lo 169 Sulav		_	_		• _		
I.	2n/c1 <sub>2</sub>	2a/br <sub>2</sub>	81/70	L1-41/706 <sub>2</sub>	2/9E	Land Acids	Redox Cr-Fe
1980	NCA	NCA	NCA	NCA	NCA	4	NCA
1985	NCA	NCA	7	3	NCA	7	NCA
1990	7	4	7	3	3	7	7
2000	4	7	7	3	3	7	7

PARAMETER: ENVIRONMENTAL CONSTRAINTSUNITS: Ordinal;1-5

Redox Cr-Fe	NCA NCA 5
Lead	יט אי אי
S/BN	NCA NCA 5 5
L1-A1/FeS2	NCA 5 5
N1/Fe	NCA 5 5
Z <sup>18/nZ</sup>	NCA NCA 4
Zn/c1	A
YEAR	1980 1985 1990 2000

PARAMETER: THERMAL ENERGY AVAILABLE UNITS: Ordinal; 1-5

CALIFORNIA CONTRACTOR ACTIONS OF ACTIONS OF STREET

Redox Ct-Fe	NCA NCA 1
Lead	пппп
s/Pn	NCA NCA 3
Li-Al/FeS <sub>2</sub>	NCA 3 3 3 4
N1/Fe	NCA 1 1 1
Zn/Br <sub>2</sub>	NCA NCA 1
zu/cj <sup>2</sup>	NCA 1 1
XEVE	1980 1985 1990 2000

## THERMAL ENERGY STORAGE PARAMETERS

This section presents the parameter values for thermal energy storage (TES) technologies. TES devices were assumed to be applicable for space-heating with a continuous diurnal cycle with 365 days per year operation.

The TES parameters are for the total system. Therefore this section does not include any of the "ex. BOP" parameters that were included for the batteries and the energy conversion technologies. Certain parameters for the energy conversion technologies are not directly applicable to the TES technologies:

- Annual fuel consumption becomes annual energy required for charging.
- Annual fuel cost becomes annual cost of energy required for charging.
- Start-up time becomes charge time.
- Shutdown time becomes discharge time.
- Fuel capability becomes charging energy requirements.

The following parameters were excluded from the TES parameter survey becasue their values were the same for all of the TES technologies and therefore do not affect the decision as to the best technology for any given application:

- Locational constraints
- Environmental constraints
- Thermal energy available
- · Lifetime.

PARAMETE	R: TYPE	: 		UNITS: Mo	obile (M)/	Transporta	able <sup>(T)</sup> /Fi	(F)
Thermal Energy Capacity, 10 <sup>3</sup> Btu	Year	сас1.6 н <sub>2</sub> 0	Na <sub>2</sub> SO <sub>4</sub> ·10 H <sub>2</sub> 0	$^{\text{NaS}_2\text{O}_3\cdot5}$ $^{\text{H}_2\text{O}}$	Olivine Ceramic	Magnisite Ceramic	Form-Stable Polyethylene	
50	1980 1985	M M	M M	NCA M	M M	M M	NCA NCA	
100	1990 2000 1980 1985 1990	M M M M	M M M M M	M M NCA M	M M M M M	M M M M M	M M NCA NCA M	
250	2000 1980	M M	M M	M NCA	M M	M M	M NCA	
500	1985 1990 2000	M M M	M M M	M M M	M M M	M M M	NCA M M	
500	1980 1985 1990	M M M	M M M	NCA M M	F F	F F F	NCA NCA M	
1000	2000 1980 1985 1990	M M M M	M M M	M NCA M M	F F	F F	M NCA NCA	
5000	2000 1980 1985	M M M	M M M	M NCA M	F F F	F F F	M M NCA NCA	
12500	1990 2000 1980 1985	M M M M	M M M M	M M NCA M	F F F	F F F	M M NCA NCA	
25,000	1990 2000 1980 1985	M M M M	M M M M	M M NCA M	F F F	F F F F	M M NCA NCA	
37,500	1990 2000 1980	M M F	M M M	M M NCA	F F F	F F	M M NCA	
50,000	1985 1990 2000 1980	F F F	M M M M	M M M NCA	F F F	F F F	NCA M M NCA	
30,000	1985 1990 2000	F F F	M M M	M M M	F F F	F F	NCA NCA F	
250,000	1980 1985 1990	F F	F F	NCA F F	F F F	F F	NCA NCA	
	2000	F F	F F	F	F	F	F F	ł

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chemical ( bookscoped) and accommode a supposition and the

PARAMET	ER : CHARG	ING ENERGY	CAPABILI	TYUNITS: T	hermal <sup>(T)</sup>	/Electric	(E)
Thermal Energy Capacity, 10 <sup>3</sup> Btu	Year	CeC1.6 H <sub>2</sub> 0	Na <sub>2</sub> SO <sub>4</sub> · 10 H <sub>2</sub> 0	NaS <sub>2</sub> 03.5 H <sub>2</sub> 0	Olivine Ceramic	Magnisite Ceramic	Form-Stable Polyethylene
50	1980	T	T	NCA	E	E	NCA
	1985	T	T	T	E	E	NCA
	1990	T	T	T	E	E	T
	2000	T	T	T	E	E	T
100	1980	T	T	NCA	E	E	NCA
	1985	T	T	T	E	E	NCA
	1990	T	T	T	E	E	T
252	2000	T	T	T	E E	E	T
250	1980	T	T	NCA	E	E	NCA
	1985	T	T	T	E	E	NCA
	1990	T T	T	T	E	E	T T
500	2000 1980	T	T	T	E	E	T
300	1985	Ţ	T .	NCA	E	E	NCA
	1990	T T	T	T	E	E	NCA
i	2000	T	T	Ţ	E	E	T
1000	1980	T T	T	T	E	E	T
1000	1985	T	T T	NCA	E	E	NCA
	1990	T	T	T	EEEEEEEEEEEEEE	E	NCA
	2000	T	T	T	E	E	T T
5000	1980	T	T	T	E	E E	
	1985	Ť	T	NCA T	E	E	NCA
	1990	Ť	Ť	T T	E	E	NCA
ł	2000	Ť	Ť	Ť	E	E	T T
12500	1980	Ť	Ť	NCA	E .	E	NCA
	1985	Ť	Ť	T		E	NCA NCA
<b>E</b>	1990	Ť	Ť	T		E	T
	2000	T T T	T	T	E	E	T
25,000	1980	Ť		NCA	E	E	NCA
	1985		T	T		E	NCA
3	1990	T	Ť	T	E	E	T
	2000	T	T	T	E E E	E	T
37,500	1980	T	T	NCA	Ē	E	NCA
	1985	T	T	T	Ē	E	NCA
	1990	T	T	T	E	E	T
	2000	T	T	T	E	E	T
50,000	1980	T	T	NCA	E	E	NCA
	1985	T	T	T	E	E	NCA
	1990	T	T	T	E	E	T
250 000	2000	T	T	T	E	E	T
250,000	1980	T	T	NCA	E	E	NCA
	1985 1990		TTTTTTTTTTTTTTTTTTTTTTTTTTTTTTTTTTTTTTT	T		E	NCA
		T	T	T	E	E	T
<b></b>	2000	T	T	T	E	E	T

PARAMET	ER: 3131	EM ACQUISI	TION COST	UNITS:	1980 Doll	ars	
Thermal Energy Capacity, 103Btu	Year	CaC1.6 H <sub>2</sub> 0	Na <sub>2</sub> SO <sub>4</sub> ·10 H <sub>2</sub> 0	NaS <sub>2</sub> O <sub>3</sub> ·5 H <sub>2</sub> O	Olivine Ceramic	Magnisite Ceramic	Form-Stable Polyethylene
50	1980	503	776	NCA	255	502	NCA
I	1985	453	698	491	255	313	NCA
•	1990	453	698	491	255	313	812
	2000	453	698	491	255	313	812
100	1980	867	1360	NCA	485	892	NCA
	1985	. 780	1220	842	485	558	NCA
	1990	780	1220	842	485	558	1400
	2000	780	1220	842	485	558	1400
250	1980	1740	2790	NCA	1130	1880	NCA
ł	1985	1570	2510	1680	1130	1180	NCA
	1990	1570	2510	1680	1130	1180	2780
	2000	1570	2510	1680	1130	1180	2780
500	1980	_ 2870	4730	NCA	2140	3270	NCA
	1985	2580	4260	2750	2140	2040	NCA
	1990	2580	4260	2750	2140	2040	4460
	2000	2580	4260	2750	2140	2040	4460
1000	1980	4590	7830	NCA	4040	5600	NCA
	1985	4130	7050	4330	4040	3500	NCA
	1990	4130	7050	4330	4040	3500	6710
	2000	4130	7050	4330	4040	3500	6710
5000	1980	10600	21900	NCA	17400	18000	NCA
	1985	9540	19700	9300	17400	11300	NCA
	1990	9540	19700	9300	17400	11300	7950
	2000	9540	19700	9300	17400	11300	7950
12500	1980	26500	32000	NCA	43500	45000	NCA
	1985	23900	28800	23300	43500	28100	NCA
I	1990	23900	28800	23300	43500	28100	19900
	2000	23900 53000	28800	23300	43500	28100	19900
25,000	1980	23333	64000	NCA	87000	90000	NCA
ł	1985	47700	57600	46500	87000	56300	NCA
	1990	47700	57600	46500	87000	56300	39800
27 500	2000	47700 79500	57600	46500	87000	56300	39800
37,500	1980	71600	96000	NCA	131000	135000	NCA
	1985 1990	·71600	86400	69800	131000	84400	NCA
	2000	71600	86400 86400	69800	131000	84400	59600
50,000	1980	106000	128000	69800	131000	84400	59600
30,000	1985	95400	115000	NCA 93000	174000	180000	NCA
•	1990	95400	115000	93000	174000	113000	NCA
	2000	95400	115000	93000	174000	113000	79500
250,000	1980	530000	640000	NCA	174000	113000	79500
1	1985	477000	576000	465000	870000 870000	900000	NCA NCA
į.	1990	477000	576000	465000	870000	563000 563000	NCA 398000
	2000	477000	576000	465000	870000	563000	398000

PARAMETE	R: ANNUA	LOEMC	OSTS	UNITS: 1980 Dollars				
Thermal Energy Capacity, 10 <sup>3</sup> Btu	Year	CaC1.6 H20	Na <sub>2</sub> SO <sub>4</sub> ·10 H <sub>2</sub> 0	NaS <sub>2</sub> 03.5 H <sub>2</sub> 0	Olivine Ceramic	Magnisite Ceramic	Form-Stable Polyethylene	
50	1980	2.63	41.10	NCA	7.88	15.50	NCA	
	1985	2.37	37.00	63.80	7.88	9.69	NCA	
	1990	2.37	37.00	63.80	7.88	9.69	24.40	
	2000	2.37	37.00	63.80	7.88	9.69	24.40	
100	1980	4.98	72.10	NCA	13.10	24.20	NCA	
	1985	4.48	64.90	109.00		15.10	NCA	
	1990	4.48	64.90	109.00		15.10	42.00	
250	2000	4.48	64.90	109.00		15.15	42.00	
250	1980	11.60	148.00	NCA	24.90	41.40	NCA	
	1985	10.40	133.00	218.00		25.90	NCA	
	1990	10.40	133.00	218.00		25.90	83.40	
500	2000 1980	10.40	133.00	218.00		25.90	83.40	
300	1985	21.70 19.50	251.00	NCA	38.90	59.50	NCA	
	1990	19.50	226.00 226.00	358.00		37.20	NCA	
	2000	19.50	226.00	358.00 358.00		37.20	134.00	
1000	1980	40.60	415.00	NCA	38.90 58.20	37.20 80.60	134.00	
1000	1985	36.50	374.00	563.00		50.40	NCA NCA	
	1990	36.50	374.00	563.00		50.40	201.00	
	2000	36.50	374.00	563.00		50.40	201.00	
5000	1980	171.00	1160.00	NCA	97.40	101.00	NCA	
3000	1985	154.00	1040.00	1210.00		63.10	NCA NCA	
	1990	154.00	1040.00	1210.00		63.10	239.00	
	2000	154.00	1040.00	1210.00		63.10	239.00	
12500	1980	380.00	1700.00	NCA	244.00		NCA	
	1985	342.00	1530.00	3030.00			NCA	
	1990	342.00	1530.00	3030.00			597.00	
	2000	342.00	1530.00	3030.00			597.00	
25,000	1980	691	3390	NCA	487	504	NCA	
•	1985	622	3050	6050	487	315	NCA	
	1990	622	3050	6050	487	315	1190	
	2000	622	3050	6050	487	315	1190	
37,500	1980	976	5090	NCA	734	756	NCA	
	1985	878	4580	9070	734	473	NCA	
	1990	878	4580	9070	734	473	1790	
	2000	878	4580	9070	734	473	1790	
50,000	1980	1240	6780	NCA	974	1010	NCA	
	1985	1120	6100	12100	974	631	NCA	
	1990	1120	6100	12100	974	631	2390	
250 622	2000	1120	6100	12100	974	631	2390	
250,000	1980	4610	33900	NCA	4870	5040	NCA	
	1985	4150	30500	60500	4870	3150	NCA	
	1990	4150	30500	60500	4870	3150	11900	
	2000	4150	30500	60500	4870	3150	11900	

PARAMETI	R: SYST	EM EFFICII	ENCY	UNITS:_I	Percent		
Thermal Energy Capacity, 10 <sup>3</sup> Btu	Year	CaCl·6 H <sub>2</sub> O	Na <sub>2</sub> SO <sub>4</sub> ·10 H <sub>2</sub> 0	NaS <sub>2</sub> 03.5 H <sub>2</sub> 0	Olivine Ceramic	Magnisite Ceramic	Form-Stable Polyethylene
50	1980	95	95	NCA	95	95	NCA
<u> </u>	1985	95	95	95	95	95	NCA
	1990	95	95	95	95	95	95
	2000	95 95 95 95 95 95	95	95 95 95	95	95	<b>9</b> 5
100	1980	95	95	NCA	95	95	NCA
	1985	95	95	95 95	<b>9</b> 5	95	NCA
	1990	95	95	95	95	95	95
	2000		95	95	95	95 95	95
250	1980	95	95	NCA	95	95	NCA
	1985	95	95	95	95	95	NCA
:	1990	95	95	95	95	95	95
500	2000	95	95	95	95	95	95
500	1980	95	95	NCA	95	95	NCA
	1985	95	95	95	95	95 95	NCA
	1990	95	95	95	95	95	95
1000	2000	95 05	95	95 NCA	95	95	95
1000	1980	95	95	NCA	95	95	NCA
	1985	95	95	95	95	95	NCA
	1990	95 05	95	95	95	95	95
5000	2000	95 05	95 05	95	95	95	95
5000	1980	95 05	95 05	NCA	95	95	NCA
	1985	95 05	95 05	95 05	95 05	95 95 95 95	NCA
	1990	95 05	95	95	95 05	95	95
12500	2000	95 05	95 05	95	95 05	95	95
12300	1980	95 95	95 05	NCA	95 05	95	NCA
	1985		95 05	95 05	95 05	95	NCA
•	1990	95 05	95 05	95	95	95	95
25 000	2000	95 05	95 05	95 NC4	95 05	95	95
25,000	1980	95 95	95 05	NCA OF	95	95	NCA NCA
•	1985 1990	95 95	95 95	95 95	95 95	95 05	NCA 05
	2000	95 95	95 95	95 95	95	95 95	95 95
37,500	1980	95 95	95	NCA	95	95 95	NCA
3,,500	1985	95 95	95	95	95 95	95 95	NCA NCA
	1990	95	95	95	95	95	95
	2000	95	95	95 95	95	95	95
50,000	1980	95	95	NCA	95	95	NCA
<b>1</b>	1985	95	95	95	95	95	NCA
	1990	95	95	95	95	95	95
	2000	95	95	95	95	95	95
250,000	1980	95	95	NCA	95	95	NCA
, , = = =	1985	95	95	95	95	95	NCA
	1990	95	95	95	95	95	95
	2000	95	95	95	95	95	95

ECOST CARAGOS CONTOCOS CONTOCO

## ANNUAL ENERGY REQUIRED FOR CHARGING

CONTRACT CONTRACT CONTRACTOR CONTRACT CONTRACT CONTRACT CONTRACTOR

PARAMETI	ER:	CHARGING		UNITS:	Btu		
Thermal Energy Capacity, 10 <sup>3</sup> Btu	Year	CaC1-6 H <sub>2</sub> 0	Na <sub>2</sub> SO <sub>4</sub> ·10 H <sub>2</sub> 0	NaS <sub>2</sub> 0 <sub>3</sub> ·5 H <sub>2</sub> 0	Olivine Ceramic	Magnisite Ceramic	Form-Stable Polyethylene
50	1980	1.92E07	1.92E07	NCA	1.92E07	1.92E07	NCA
	1985	1.92E07	1.92E07	1.92E07	1.92E07	1.92E07	NCA
	1990	1.92E07	1.92E07	1.92E07	1.92E07	1.92E07	1.92E07
	2000	1.92E07	1.92E07	1.92E07	1.92E07	1.92E07	1.92E07
100	1980	3.84E07	3.84E07	NCA	3.84E07	3.84E07	NCA
	1985	3.84E07	3.84E07	3.84E07	3.84E07	3.84E07	NCA
I	1990	3.84E07	3.84E07	3.84E07	3.84E07	3.84E07	3.84E07
250	2000	3.84E07	3.84E07	3.84E07	3.84E07	3.84E07	3.84E07
250	1980	9.61E07	9.61E07	NCA	9.61E07	9.61E07	NCA
	1985	9.61E07	9.61E07	9.61E07	9.61E07	9.61E07	NCA
	1990 2000	9.61E07	9.61E07	9.61E07	9.61E07	9.61E07	9.61E07
500	1980	9.61E07	9.61E07	9.61E07	9.61E07	9.61E07	9.61E07
500	1985	1.92E08	1.92E08	NCA	1.92E08	1.92E08	NCA
	1990	1.92E08 1.92E08	1.92E08	1.92E08	1.92E08	1.92E08	NCA
	2000	1.92E08	1.92E08 1.92E08	1.92E08 1.92E08	1.92E08	1.92E08 1.92E08	1.92E08 1.92E08
1000	1980	3.84E08	3.84E08	NCA	1.92E08 3.84E08	3.84E08	NCA
	1985	3.84E08	3.84E08	3.84E08	3.84E08	3.84E08	NCA NCA
	1990	3.84E08	3.84E08	3.84E08	3.84E08	3.84E08	3.84E08
	2000	3.84E08	3.84E08	3.84E08	3.84E08	3.84E08	3.84E08
5000	1980	1.92E09	1.92E09	NCA	1.92E09	1.92E09	NCA
	1985	1.92E09	1.92E09	1.92E09	1.92E09	1.92E09	NCA
	1990	1.92E09	1.92E09	1.92E09	1.92E09	1.92E09	1.92E09
	2000	1.92E08	1.92E09	1.92E09	1.92E09	1.92E09	1.92E09
12500	1980	4.80E09	4.80E09	NCA	4.80E09	4.80E09	NCA
	1985	4.80E09	4.80E09	4.80E09	4.80E09	4.80E09	NCA
<b>a</b>	1990	4.80E09	4.80E09	4.80E09	4.80E09	4.80E09	4.80E09
	2000	4.80E09	4.80E09	4.80E09	4.80E09	4.80E09	4.80E09
25,000	1980	9.61E09	9.61E09	NCA	9.61E09	9.61E09	NCA
	1985	9.61E09	9.61E09	9.61E09	9.61E09	9.61E09	NCA
1	1990	9.61E09	9.61E09	9.61E09	9.61E09	9.61E09	9.61E09
	2000	9.61E09	9.61E09	9.61E09	9.61E09	9.61E09	9.61E09
37,500	1980	1.44E10	1.44E10	NCA	1.44E10	1.44E10	NCA
	1985	1.44E10	1.44E10	1.44E10	1.44E10	1.44E10	NCA
	1990	1.44E10	1.44E10	1.44E10	1.44E10	1.44E10	1.44E10
** ***	2000	1.44E10	1.44E10	1.44E10	1.44E10	1.44E10	1.44E10
50,000	1980	1.92E10	1.92E10	NCA	1.92E10	1.92E10	NCA
	1985	1.92E10	1.92E10	1.92E10	1.92E10	1.92E10	NCA
1	1990	1.92E10	1.92E10	1.92E10	1.92E10	1.92E10	1.92E10
250,000	2000 1980	1.92E10	1.92E10	1.92E10	1.92E10	1.92E10	1.92E10
230,000	1985	9.61E10	9.61E10	NCA	9.61E10	9.61E10	NCA
I.	1990	9.61E10	9.61E10	9.61E10	9.61E10	9.61E10	NCA 0.61510
	2000	9.61E10 9.61E10	9.61E10 9.61E10	9.61E10 9.61E10	9.61E10 9.61E10	9.61E10 9.61E10	9.61E10 9.61E10
<del></del>	1 4000	7.UIEIU	7.01E10	3.01EIO	3.01E10	3.01E10	J. UIEIU

### ANNUAL COST OF ENERGY REQUIRED FOR CHARGING

PARAMET	ER :	LED FOR CH	llars					
Thermal Energy Capacity, 10 <sup>3</sup> Btu	Year	СаС1·6 Н <sub>2</sub> О	Na2 SO4 .10 H20	NaS <sub>2</sub> O <sub>3</sub> ·5 H <sub>2</sub> O	Olivine Ceramic	Magnisite Ceramic	Form-Stable Polyethylene	
50	1980	0	0	NCA	89	89	NCA	1
	1985	. 0	0	0	157	157	NCA	I
1	1990	, 0	) 0	0	157	157	0	ı
100	2000	0	0	0	157	157	0	ı
100	1980 1985	0 0 0 0	0	NCA	178	178	NCA	1
	1990	Ü	0	0	314	314	NCA	
	2000	0	0	0	314	314	0	I
250	1980	U	0	0	314	314	0	I
	1985	0 0	0	NCA	446	446	NCA	1
	1990	0	0	0	786	786	NCA	ı
	2000	0	0	0	786	786	0	ı
500	1980	0	Ö	0	786	786	0	ı
	1985	o	ŏ	NCA	891	891	NCA	ı
	1990	Ö	ő	0	1570	1570	NCA	ı
	2000	Ö	ŏ	0	1570 1570	1570	0	ł
1000	1980	Ö	ŏ	0 NCA	1780	1570 1780	O NCA	ı
	1985	Ö	ŏ	0	3140	3140	NCA	ı
•	1990	Ŏ	ŏ	0	3140	3140	0	ı
	2000	Ö	Ŏ	0	3140	3140	Ö	ı
5000	1980	0	Ŏ	NCA	8910	8910	NCA	ı
	1985	Ō	Ŏ	0	15700	15700	NCA	ı
	1990	0	0	0	15700	15700	0	f
	2000	0	0	0	15700	15700	0	ı
12500	1980	0	0	NCA	22300	22300	NCA	
	1985	0	0	0	39300	39300	NCA	
	1990	0	0 0 0	0	39300	39300	0	
25 222	2000	0		0	39300	39300	0	ı
25,000	1980	0	0	NCA	44600	44600	NCA	ı
	1985 1990	0	0	0	78600	78600	NCA	ı
	2000	0	0	0	78600	78600	0	
37,500	1980	0	0	0	78600	78600	0	
J.,500	1985	0	0	NCA	66800	66800	NCA	ı
	1990	0	0	0	118000	118000	NCA	ı
	2000	0	0	0	118000 118000	118000	0	
50,000	1980	0	Ö	NCA	89100	118000 89100	NCA	ı
<u> </u>	1985	Ö	Ö	0	157000	157000	NCA NCA	
	1990	Ö	Ŏ	ŏ	157000	157000	0	1
	2000	Ö	Ö	Ŏ	157000	157000	Ö	1
<b>250,00</b> 0	1980	Ŏ	Ö	NCA	446000	446000	NCA	
	1985	Ŏ	Ö	0	786000	786000	NCA	ĺ
	1990	Ŏ	Ö	Ŏ	786000		0	
	2000	0	Ö	Ö	786000	786000 786000	o	ĺ

THE CONTRACT SCHOOLSE CONTRACTOR CONTRACTOR

## ANNUAL COST OF ENERGY REQUIRED FOR CHARGING

PARAME	TER:	(5%)	(5%)		UNITS: 1980 Dollars		
Thermal Energy Capacity, 103Btu	.	CaC1.6 H <sub>2</sub> O	Na2 SO4 .10 H20	NaS <sub>2</sub> 03.5 H <sub>2</sub> 0	Olivine Ceramic	Magnisite Ceramic	Form-Stable Polyethylene
50		57	57	NCA	157	157	NCA
	1985	73	73	73	200	200	NCA
•	1990	93	93	93	256	256	93
100	2000	153	153	153	416	416	153
100	1980	115	115	NCA	314	314	NCA
	1985	147	147	147	401	401	NCA
	1990	188	188	188	512	512	188
250	2000	306	306	306	833	833	306
250	1980 1985	288	288	NCA	786	786	NCA
	1990	368 430	368	368	1000	1000	NCA
1	2000	470	470	470	1280	1280	470
500	1980	766	766	766	2090	2090	766
300	1985	576	576	NCA	1570	1570	NCA
<u>F</u>	1990	735 939	735	735	2000	2000	NCA
	2000		939	939	2560	2560	939
1000	1980	1530 1150	1530	1530	4160	4160	1530
1 -000	1985	1470	1150	NCA	3140	3140	NCA
	1990	1880	1470	1470	4010	4010	NCA
	2000	3060	1880	1880	5110	5110	1880
5000	1980	5760	3060	3060	8330	8330	3060
	1985	7350	5760	NCA	15700	15700	NCA
	1990	9390	7350	7350	20000	20000	NCA
	2000	15300	9390	9390	25600	25600	9390
12500	1980	14400	15300 14400	15300	41600	41600	15300
	1985	18400	18400	NCA	39300	39300	NCA
₽	1990	23500	23500	18400	50200	50200	NCA
	2000	38300	38300	23500 38300	64000	64000	23500
25,000	1980	28800	28800	NCA	104000 78600	104000 78600	38300
	1985	36800	36800	36800	1	100000	NCA
	1990	47000	47000	47000	•	128000	NCA 47000
	2000	76600	76600	76600		209000 209000	
37,500	1980	43200	43200	NCA		118000	76600 NCA
·	1985	55200	55200	55200		151000	NCA NCA
	1990	70400	70400	70400		192000	70400
	2000		115000	115000		313000	115000
50,000	1980	57600	57600			157000	NCA
	1985	73500	73500			200000	NCA
	1990	93900	93900			256000	93900
	2000		153000			416000	153000
250,000	1980		288000			786000	NCA
	1985		368000			1000000	NCA
	1990		470000			280000	470000
	2000		766000			2090000	766000

#### ANNUAL COST OF ENERGY REQUIRED FOR CHARGING

PARAMETE	ER:	(10%)		UNITS: 1980 Dollars				
Thermal Energy Capacity, 10 <sup>3</sup> Btu	Year	CaCl·6 H <sub>2</sub> O	Na2 SO4 .10 H20	NaS <sub>2</sub> 03·5 H <sub>2</sub> 0	Olivine Ceramic	Magnisite Ceramic	Form-Stable Polyethylene	
50	1980	115	115	NCA	187	187	NCA	
	1985	92	92	92	253	253	NCA	
	1990	149	149	149	407	407	149	
	2000	387	387	387	1060	1060	387	
100	1980	230	230	NCA	374	374	NCA	
	1985	185	185	185	505	505	NCA	
	1990	298	298	298	814	814	298	
250	2000	774	774	774	2110	2110	774	
250	1980	576	576	NCA	937	937	NCA	
	1985	464	464	464	1270	1270	NCA	
	1990 2000	747	747	747	2040	2040	747	
500	1980	1940	1940	1940	5290	5290	1940	
300	1985	1150	1150	NCA	1870	1870	NCA	
	1990	926	926	926	2530	2530	NCA	
	2000	1490	1490	1490	4070	4070	1490	
1000	1980	3870 2300	3870	3870	10600	10600	3870	
	1985	1850	2300	NCA	3740	3740	NCA	
	1990	2980	1850	1850	5050	5050	NCA	
	2000	7740	2980 7740	2980	8140	8140	2980	
5000	1980	11500	11500	7740	21100	21100	7740	
	1985	9260	9260	NCA 9260	18700 25300	18700	NCA	
	1990	14900	14900	14900	40700	25300	NCA 14900	
	2000	38700	38700	38700	106000	40700 106000		
12500	1980	28800	28800	NCA	46800	46800	38700 NCA	
	1985	23200	23200	23200	63200	63200	NCA NCA	
	1990	37300	37300	37300	102000	102000	37300	
	2000	96900	96900	96900	264000	264000	96900	
25,000	1980	57600	57600	NCA	93700	93700	NCA	
	1985	46400	46400	46400	127000	127000	NCA	
	1990	74700	74700	74700	204000	204000	74700	
	2000	194000	194000	194000	529000	529000	194000	
37,500	1980	86400	86400	NCA	141000	141000	NCA	
	1985	69600	69600	69600	190000	190000	NCA	
	1990	112000	112000	112000	307000	307000	112000	
l [	2000	291000	291000	291000	796000	796000	291000	
50,000	1980	115000	115000	NCA	187000	187000	NCA	
	1985	92600	92600	92600	253000	253000	NCA	
ŀ	1990	149000	149000	149000	407000	407000	149000	
250,000	2000	387000	387000	387000	1060000	1060000	387000	
1,000	1980 1985	576000	576000	NCA	937000	937000	NCA	
i	1985	464000	464000	464000	1270000	1270000	NCA	
1	2000	747000	747000	747000	2040000	2040000	747000	
	2000	1940000	1940000	1940000	5290000	5290000	1940000	

_	ER: LIFE-	CYCLE COST	<u> </u>	UNITS: 103 Dollars/10 Btu				
Thermal Energy Capacity, 10 <sup>3</sup> Btu	Year	сас1.6 H <sub>2</sub> 0	Na <sub>2</sub> SO <sub>4</sub> ·10 H <sub>2</sub> 0	NaS <sub>2</sub> 03.5 H <sub>2</sub> 0	Olivine Ceramic	Magnisite Ceramic	Form-Stable Polyethylene	
50	1980	1.37	2.93	NCA	2.81	3.63	NCA	
ĺ	1985 1990	1.23	2.63	2.69	4.32	4.51	NCA	
	2000	1.23 1.23	2.63 2.63	2.69 2.69	4.32 4.32	4.51 4.51	2.66 2.66	
100	1980	1.18	2.57	NCA	2.75	3.40	NCA	
	1985	1.07	2.31	2.30	4.25	4.37	NCA	
ŀ	1990	1.07	2.31	2.30	4.25	4.37	2.29	
	2000	1.07	2.31	2.30	4.25	4.37	2.29	
250	1980	0.96	2.11	NCA	2.67	3.14	NCA	
3	1985	0.86	1.90	1.84	4.18	4.21	NCA	
	1990	0.86	1.90	1.84	4.18	4.21	1.82	
500	2000	0.86	1.90	1.84	4.18	4.21	1.82	
500	1980 1985	0.80	1.79	NCA	2.62	2.96	NCA	
	1990	0.72 0.72	1.61 1.61	1.51 1.51	4.12	4.09	NCA	
i	2000	0.72	1.61	1.51	4.12 4.12	4.09 4.09	1.46 1.46	
1000	1980	0.64	1.48	NCA	2.56	2.79	NCA	
	1985	0.58	1.33	1.19	4.07	3.99	NCA	
	1990	0.58	1.33	1.19	4.07	3.99	1.10	
	2000	0.58	1.33	1.19	4.07	3.99	1.10	
5000	1980	0.31	0.83	NCA	2.45	2.47	NCA	
B	1985	0.28	0.74	0.51	3.96	3.79	NCA	
•	1990	0.28	0.74	0.51	3.96	3.79	0.26	
10500	2000	0.28	0.74	0.51	3.96	3.79	0.26	
12500	1980	0.31	0.48	NCA	2.45	2.47	NCA	
	1985 1990	0.28	0.44	0.51	3.96	3.79	NCA	
	2000	0.28 0.28	0.44 0.44	0.51 0.51	3.96 3.96	3.79 3.79	0.26 0.26	
25,000	1980	0.28	0.48	NCA	2.45	2.47	NCA	
	1985	0.28	0.43	0.51	3.96	3.79	NCA	
	1990	0.28	0.43	0.51	3.96	3.79	0.26	
	2000	0.28	0.43	0.51	3.96	3.79	0.26	
37,500	1980	0.30	0.48	NCA	2.45	2.47	NCA	
	1985	0.27	0.43	0.51	3.96	3.79	NCA	
	1990	0.27	0.43	0.51	3.96	3.79	0.26	
50,000	2000 1980	0.27 0.30	0.43	0.51	3.96	3.79	0.26	
JU,000	1985	0.30	0.48 0.43	NCA 0.51	2.45 3.96	2.47 3.79	NCA NCA	
	1990	0.27	0.43	0.51	3.96	3.79	0.26	
	2000	0.27	0.43	0.51	3.96	3.79	0.26	
250,000	1980	0.30	0.48	NCA	2.45	2.47	NCA	
	1985	0.27	0.43	0.51	3.96	3.79	NCA	
	1990	0.27	0.43	0.51	3.96	3.79	0.26	
	2000	0.27	0.43	0.51	3.96	3.79	0.26	

PARAMET	ER: LIFE	-CYCLE CO	ST (5%)	_ UNITS:_	1980 Dol	lars/10 <sup>6</sup>	Btu
Thermal Energy Capacity, 10 <sup>3</sup> Btu	Year	CaC1.6 H20	Na2 SO4 .10 H20	NaS <sub>2</sub> 03.5 H <sub>2</sub> 0	Olivine Ceramic	Magnisite Ceramic	Form-Stable Polyethylene
50	1980	3.28	4.84	NCA	6.04	6.85	NCA
	1985	3.67	5.07	5.13	7.46	7.65	NCA
	1990	4.34	5.75	5.80	9.32	9.51	5.77
100	2000	6.30	7.70	7.76	14.62	14.81	7.72
100	1980	3.09	4.47	NCA	5.98	6.63	NCA
	1985	3.50	4.74	4.74	7.42	7.53	NCA
1	1990 2000	4.18	5.42	5.42	9.25	9.37	5.40
250	1980	6.13 2.86	7.37	7.37	14.57	14.69	7.36
230	1985	3.30	4.01 4.33	NCA	5.90	6.36	NCA
B	1990	3.97	5.00	4.27 4.95	7.31	7.35	NCA
ď	2000	5.93	6.96	6.91	9.17 14.53	9.20	4.93
500	1980	2.70	3.70	NCA	5.84	14.56	6.88
	1985	3.15	4.04	3.94	7.27	7.24	NCA NCA
	1990	3.82	4.82	4.62	9.12	9.09	4.57
	2000	5.78	6.24	6.58	14.42	14.39	6.53
1000	1980	2.55	3.38	NCA	5.79	6.02	NCA
	1985	3.01	3.77	3.62	7.23	7.15	NCA
	1990	3.69	4.46	4.30	9.05	8.97	4.21
I	2000	5.65	6.40	6.25	14.38	14.30	6.16
5000	1980	2.22	2.74	NCA	5.67	5.69	NCA
• •	1985	2.72	3.18	2.94	7.10	6.93	NCA
	1990	3.39	3.85	3.62	8.95	8.79	3.37
	2000	5.35	5.81	5.58	14.25	14.09	5.33
12500	1980	2.22	2.39	NCA	5.67	5.69	NCA
3	1985	2.72	2.87	2.94	7.10	6.93	NCA
	1990	3.39	3.55	3.62	8.95	8.79	3.37
	2000	5.35	5.51	5.58	14.25	14.09	5.33
25,000	1980	2.21	2.39	NCA	5.67	5.69	NCA
	1985	2.71	2.87	2.94	7.09	6.92	NCA
	1990	3.39	3.54	3.62	8.94	8.78	3.37
37,500	2000 1980	5.34 2.21	5.50	5.58	14.25	14.10	5.33
37,300	1985	2.70	2.39 2.87	NCA	5.67 7.09	5.69	NCA
	1990	3.38	3.54	2.94 3.62	8.94	6.92	NCA
	2000	5.34	5.50	5.58	14.25	8.78 14.10	3.37 5.33
50,000	1980	2.21	2.39	NCA	5.67	5.69	NCA
	1985	2.70	2.87	2.94	7.09	6.92	NCA NCA
	1990	3.38	3.54	3.62	8.94	8.78	3.37
	2000	5.34	5.50	5.58	14.25	14.10	5.33
250,000	1980	2.20	2.39	NCA	6.57	5.69	NCA
	1985	2.70	2.87	2.94	7.09	6.92	NCA
	1990	3.38	3.54	3.62	8.94	8.78	3.37
	2000	5.33	5.50	5.58	14.25	14.10	5.33

_	PARAMETER: LIFE-CYCLE COST (10%) UNITS: 1980 Dollars/106 Btu									
Thermal Energy Capacity, 103Btu	Year	Cacl·6 H <sub>2</sub> O	Na <sub>2</sub> SO <sub>4</sub> ·10 H <sub>2</sub> 0	NaS <sub>2</sub> 03.5 H <sub>2</sub> 0	Olivine Ceramic	Magnisite Ceramic	Form-Stable Polyethylene			
50	1980	7.36	8.92	NCA	10.58	11.39	NCA			
100	1985	6.06	7.46	7.78	14.02	14.21	NCA			
	1990	8.99	10.40	10.45	22.04	22.23	10.42			
	2000	21.39	22.79	22.85	56.05	56.24	22.81			
	1980	7.17	8.22	NCA	10.52	11.17	NCA			
	1985	5.88	7.13	7.12	13.93	14.04	NCA			
	1990	8.83	10.07	10.06	21.97	22.09	10.05			
	2000	21.22	22.46	22.46	55.72	55.84	22.44			
250	1980	6.95	8.10	NCA	10.45	10.91	NCA			
500	1985	5.69	6.72	6.67	13.91	13.94	NCA			
	1990	8.64	9.67	9.61	21.93	21.96	9.59			
	2000	21.05	22.08	22.03	55.74	55.78	22.00			
	1980	6.79	7.78	NCA	10.38	10.72	NCA			
	1985	5.54	6.43	6.33	13.82	13.79	NCA			
	1990	8.48	9.37	9.27	21.84	21.81	9.22			
1000	2000	20.87	21.77	21.67	55.85	55.82	21.61			
	1980	6.63	7.47	NCA	10.33	10.56	NCA			
	1985	5.40	6.15	6.01	13.74	13.94	NCA			
	1990	8.34	9.09	8.95	21.79	21.89	8.86			
5000	2000	20.73	21.49	21.34	55.54	55.73	21.25			
	1980	6.30	6.82	NCA	10.21	10.23	NCA			
	1985	5.11	5.57	5.33	13.65	13.49	NCA			
	1990	8.04	8.50	8.27	21.76	21.51	8.02			
12500	2000	20.44	20.90	20.67	55.68	55.52	20.42			
	1980	6.31	6.48	NCA	10.22	10.24	NCA			
	1985	5.11	5.27	5.34	13.64	13.47	NCA			
25,000	1990	8.05	8.21	8.28	21.72	21.56	8.03			
	2000	20.47	20.62	20.70	55.47	55.31	20.45			
	1980	6.30	6.48	NCA	10.22	10.24	NCA			
	1985	5.10	5.26	5.34	13.69	13.52	NCA			
	1990	8.05	8.21	8.28	21.70	21.53	8.03			
37,500	2000	20.46	20.62	20.70	55.52	55.35	20.45			
	1980	6.30	6.48	NCA	10.22	10.24	NCA			
	1985	5.10	5.26	5.34	13.69	13.52	NCA			
	1990	8.05	8.21	8.28	21.70	21.53	8.03			
50,000	2000	20.46	20.62	20.70	55.52	55.35	20.45			
	1980	6.30	6.48	NCA	10.22	10.24	NCA			
	1985	5.10	5.26	5.34	13.69	13.53	NCA			
	1990	8.05	8.21	8.28	21.70	21.54	8.03			
250,000	2000	20.46	20.62	20.70	55.52	55.36	20.45			
	1980	6.29	6.48	NCA	10.22	10.24	NCA			
	1985	5.09	5.26	5.34	13.69	13.53	NCA			
	1990	8.04	8.21	8.28	21.70	21.54	8.03			
	2000	20.45	20.62	20.70	55.52	55.36	20.45			

_	PARAME?	TER: CH	ARGE TIME		UNITS:	Minu	tes		
	Thermal Energy Capacity, 10 <sup>3</sup> Btu	Year	CaC1.6 H <sub>2</sub> 0	Na2 SO4 .10 H20	NaS <sub>2</sub> 03.5 H <sub>2</sub> 0	Olivine Ceramic	Magnisite Ceramic	Form-Stable Polyethylene	
1	50	1980	510	390	NCA	480	480	NCA	
ı		1985	510	390	390	480	480	NCA	
I		1990	510	390	390	480	480	780	1
ł	100	2000 1980	510	390	390	480	480	780	
1	100	1985	510	390	NCA	480	480	NCA	ı
•		1990	510 510	390	390	480	480	NCA	1
•		2000	510 510	390	390	480	480	780	ı
	250	1980	510	390	390	480	480	780	ı
•		1985	510	390	NCA	480	480	NCA	ı
		1990	510	390	390	480	480	NCA	
		2000	510	390	390	480	480	780	Ί
ı	500	1980	510	390	390	480	480	780	1
1		1985	510	390 390	NCA	480	480	NCA	ı
		1990	510	390	390	480	480	NCA	ı
		2000	510	390	390	480	480	780	ı
	1000	1980	510	390	390	480 480	480	780	ı
I		1985	510	390	NCA 390	480	480	NCA	1
I		1990	510	390	390	480	480	NCA	1
1		2000	510	390	390	480	480	780	1
	5000	1980	510	390	NCA	480	480	780	ı
•		1985	510	390	390	480	480	NCA	ı
		1990	510	390	390	480	480	NCA	ł
		2000	510	390	390	480	480	780	ı
]	L2500	1980	510	390	NCA	480	480 480	780	1
<u>I</u>		1985	510	390	390	480	480	NCA	ı
		1990	510	390	390	480	480	NCA	ı
I		2000	510	390	390	480	480	780	ı
23	,000	1980	510	390	NCA	480	480	780 NCA	ł
		1985	510	390	390	480	480	NCA	
	i	1990	510	390	390	480	480	780	ı
27	,500	2000	510	390	390	480	480	780	ı
,	,500	1980	510 510	390	NCA	480	480	NCA	ı
		1985 1990	510	390	390	480	480	NCA	I
		2000	510	390	390	480	480	780	ľ
50	,000	1980	510	390	390	480	480	780	ı
	,,,,,,	1985	510	390	NCA 300	480	480	NCA	
		1990	510	390	390	480	480	NCA	ľ
	l	2000	510	390 300	390	480	480	780	
250	,000	1980	510	390	390	480	480	780	ı
	· · · · ·	1985	510	390 390	NCA 390	480	480	NCA	
		1990	510	390	390	480	480	NCA	
	i	2000	510	390 390	390	480	480	780 780	Ī
				270	_ J 3 (J	480	480	780	

PARA	METE	R: DISC	HARGE TIM	E	_UNITS:_	Minutes		
Thermal Energy	Capacity, 103Btu	Year	CaC1.6 H20	Na2 SO4 .10 H20	NaS <sub>2</sub> 03.5 H <sub>2</sub> 0	Olivine Ceramic	Magnisite Ceramic	Form-Stable Polyethylene
	50	1980	930	420	NCA	600	840	NCA
		1985	930	420	420	600	840	NCA
		1990	930	420	420	600	840	360
		2000	930	420	420	600	840	360
10	00	1980	930	420	NCA	600	840	NCA
1		1985	930	420	420	600	840	NCA
		1990	930	420	420	600	840	360
		2000	930	420	420	600	840	360
2:	50	1980	930	420	NCA	600	840	NCA
		1985	930	420	420	600	840	NCA
		1990	930	420	420	600	840	360
50	00	2000 1980	930	420	420	600	840	360
,		1985	930	420	NCA	600	840	NCA
		1990	930	420	420	600	840	NCA
1		2000	930 930	420 420	420	600	840 840	360
100	$_{\mathbf{n}}$	1980	930	420	420	600	840	360
	~	1985	930	420	NCA	600	840	NCA
		1990	930	420	420 420	600	840	NCA
	- 1	2000	930	420	420	600	840	360
500	00 1	1980	930	420	NCA	600	840	360 NGA
	~	1985	930	420	420	600	840	NCA NCA
	l	1990	930	420	420	600	840	360
ı	- 1	2000	930	420	420	600	840	360
1250	00 l	1980	930	420	NCA	600	840	NCA
		1985	930	420	420	600	840	NCA
	1	1990	930	420	420	600 600	840	360
-	ſ	2000	930	420	420	600	840	360
25,00	00	1980	930	420	NCA	600	840	NCA
	- 1	1985	930	420	420	600	840	NCA
	i	1990	930	420	420	600	840	360
	- 1	2000	930	420	420	600	840	360
37,50	0	1980	930	420	NCA	600	840	NCA
		1985	930	420	420	600	840	NCA
8	1	1990	930	420	420	600	840	360
	1	2000	930	420	420	600	840	360
50,00	0	1980	930	420	NCA	600	840	NCA
	1	1985	930	420	420	600	840	NCA
	- 1	1990	930	420	420	600	840	360
250 00	<u>,</u>	2000	930	420	420	600	840	360
250,00		1980	930	420	NCA	600	840	NCA
		1985	930	420	420	600	840	NCA
		1990	930	420	420	600	840	360
<b></b>	1	2000	930	420	420	600	840	360

Section   Sect	PARAMET	ER: VOLUME UNITS: Cubic Feet								
1985   12	ı,	Year	CaCl·6 H <sub>2</sub> O	.10		Olivine Ceramic	Magnisite Ceramic	Form-Stable Polyethylene		
1985   12	50		12	14	NCA	8	5	NCA		
100			12			8	5			
100			12			8	5			
1985	100					8				
1990	100					16	10			
250						16		NCA		
250						16		20		
1985	250									
1990	250						22.5			
1980   120   110	1				33		22.5			
1980	ł									
1985   120   110   65   80   45   NCA     1990   120   110   65   80   45   99     2000   120   110   65   80   45   99     1000   1980   230   210   NCA   160   90   NCA     1990   230   210   130   160   90   NCA     1990   230   210   130   160   90   NCA     1990   230   210   130   160   90   200     2000   230   210   130   160   90   200     2000   230   210   130   160   90   200     5000   1980   1200   920   NCA   800   400   NCA     1985   1200   920   650   800   400   NCA     1990   1200   920   650   800   400   990     12500   1980   2900   2100   NCA   2000   860   NCA     1990   2900   2100   1600   2000   860   NCA     1990   2900   2100   1600   2000   860   2500     2000   2900   2100   1600   2000   860   2500     25,000   1980   5700   4000   NCA   4000   1650   NCA     1990   5700   4000   3300   4000   1650   NCA     1990   5700   4000   3300   4000   1650   5000     2000   5700   4000   3300   4000   1650   5000     37,500   1980   8500   5700   4900   6000   2400   NCA     1990   8500   5700   4900   6000   2400   NCA     1990   8500   5700   4900   6000   2400   7400     50,000   1980   11000   7400   6500   8000   3200   9900     1000   7400   6500   8000   3200   9000     1000   7400   6500   8000   3200   9000     1000   7400   6500   8000   3200   9000     1000   7400   6500   8000   3200   9000     1000   7400   6500   8000   3200   9000     1000   7400   6500   8000   3200   9000     1000   7400   6500   8000   3200   9000     1000   7400   6500   8000   3200   9000     1000   7400   6500   8000   3200   9000     1000   7400   6500   8000   3200   9000     1000   7400   6500   8000   3200   9000     1000   7400   6500   8000   3200   9000     1000   7400   6500   8000   3200   9000     1000   7400   6500   8000   3200   9000     1000   7400   6500   8000   3200   9000     1000   7400   6500   8000   3200   9000     1000   7400   6500   8000   3200   9000     1000   7400   7400   7400   7400   7400   7400   7400     1000   7400   7400   7400   7400   7400   7400   7400   7400	500									
1990	300									
1000										
1000										
1985	1000									
1990							90			
5000         230         210         130         160         90         200           1980         1200         920         NCA         800         400         NCA           1985         1200         920         650         800         400         NCA           1990         1200         920         650         800         400         990           2000         1200         920         650         800         400         990           12500         1980         2900         2100         NCA         2000         860         NCA           1985         2900         2100         1600         2000         860         NCA           1990         2900         2100         1600         2000         860         2500           25,000         1980         5700         4000         NCA         4000         1650         NCA           1995         5700         4000         3300         4000         1650         NCA           1990         5700         4000         3300         4000         1650         S000           37,500         1980         8500         5700         NCA <t< th=""><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th></t<>										
5000         1980         1200         920         NCA         800         400         NCA           1985         1200         920         650         800         400         NCA           1990         1200         920         650         800         400         990           2000         1200         920         650         800         400         990           12500         1980         2900         2100         NCA         2000         860         NCA           1990         2900         2100         1600         2000         860         NCA           1990         2900         2100         1600         2000         860         2500           25,000         1980         5700         4000         NCA         4000         1650         NCA           1985         5700         4000         3300         4000         1650         NCA           1990         5700         4000         3300         4000         1650         NCA           1990         5700         4000         3300         4000         1650         5000           37,500         1980         8500         5700										
1985 1200 920 650 800 400 990 1200 920 650 800 400 990 1200 920 650 800 400 990 1200 920 650 800 400 990 12500 1980 2900 2100 NCA 2000 860 NCA 1985 2900 2100 1600 2000 860 NCA 1990 2900 2100 1600 2000 860 2500 2000 2900 2100 1600 2000 860 2500 NCA 1985 5700 4000 NCA 4000 1650 NCA 1985 5700 4000 3300 4000 1650 NCA 1990 5700 4000 3300 4000 1650 NCA 1990 5700 4000 3300 4000 1650 NCA 1990 5700 4000 3300 4000 1650 NCA 1985 8500 5700 NCA 6000 2400 NCA 1985 8500 5700 NCA 6000 2400 NCA 1990 8500 5700 4900 6000 2400 7400 NCA 1985 11000 7400 NCA 8000 3200 NCA 1985 11000 7400 NCA 8000 3200 NCA 1985 11000 7400 6500 8000 3200 NCA 1990 11000 7400 6500 8000 3200 9900	5000									
1990 1200 920 650 800 400 990 12500 1980 2900 2100 NCA 2000 860 NCA 1985 2900 2100 1600 2000 860 NCA 1990 2900 2100 1600 2000 860 2500 2000 2900 2100 1600 2000 860 2500 2000 2900 2100 1600 2000 860 2500 25,000 1980 5700 4000 NCA 4000 1650 NCA 1990 5700 4000 3300 4000 1650 NCA 1990 5700 4000 3300 4000 1650 NCA 1990 5700 4000 3300 4000 1650 S000 37,500 1980 8500 5700 NCA 6000 2400 NCA 1985 8500 5700 4900 6000 2400 NCA 1990 8500 5700 4900 6000 2400 7400 2000 8500 5700 4900 6000 2400 NCA 1990 11000 7400 NCA 8000 3200 NCA 1990 11000 7400 6500 8000 3200 NCA										
12500   1200   920   650   800   400   990   990   1980   2900   2100   1600   2000   860   NCA   1990   2900   2100   1600   2000   860   NCA   1990   2900   2100   1600   2000   860   2500   25,000   1980   5700   4000   NCA   4000   1650   NCA   1990   5700   4000   3300   4000   1650   NCA   1990   5700   4000   3300   4000   1650   NCA   1990   5700   4000   3300   4000   1650   5000   2000   5700   4000   3300   4000   1650   5000   37,500   1980   8500   5700   NCA   6000   2400   NCA   1985   8500   5700   4900   6000   2400   NCA   1990   8500   5700   4900   6000   2400   NCA   1990   8500   5700   4900   6000   2400   7400   7400   1980   11000   7400   NCA   8000   3200   NCA   1990   11000   7400   6500   8000   3200   9900   1000   7400   6500   8000   3200   9900   1000   7400   6500   8000   3200   9900   1000   7400   6500   8000   3200   9900   1000   7400   6500   8000   3200   9900   1000   7400   6500   8000   3200   9900   1000   7400   6500   8000   3200   9900   1000   7400   6500   8000   3200   9900   1000   7400   6500   8000   3200   9900   1000   7400   6500   8000   3200   9900   1000   7400   6500   8000   3200   9900   1000   7400   6500   8000   3200   9900   1000   7400	•									
12500										
1985	12500									
25,000   1980   2900   2100   1600   2000   860   2500   25,000   1980   5700   4000   NCA   4000   1650   NCA   1985   5700   4000   3300   4000   1650   NCA   1990   5700   4000   3300   4000   1650   5000   2000   5700   4000   3300   4000   1650   5000   2000   5700   4000   3300   4000   1650   5000   1650   5000   1980   8500   5700   NCA   6000   2400   NCA   1985   8500   5700   4900   6000   2400   NCA   1990   8500   5700   4900   6000   2400   7400   2000   8500   5700   4900   6000   2400   7400   7400   1980   11000   7400   NCA   8000   3200   NCA   1985   11000   7400   6500   8000   3200   9900   1990   11000   7400   6500   8000   3200   9900   10000   7400   6500   8000   3200   9900   10000   7400   6500   8000   3200   9900   10000   7400   6500   8000   3200   9900   10000   7400   6500   8000   3200   9900   10000   74000   6500   8000   3200   9900   10000   74000   6500   8000   3200   9900   10000   74000   6500   8000   3200   9900   10000   74000   6500   8000   3200   9900   10000   7400										
25,000   2900   2100   1600   2000   860   2500										
25,000		2000								
1985 5700 4000 3300 4000 1650 NCA 1990 5700 4000 3300 4000 1650 5000 5000 1980 8500 5700 4900 6000 2400 NCA 1990 8500 5700 4900 6000 2400 NCA 1990 8500 5700 4900 6000 2400 7400 7400 1980 11000 7400 NCA 8000 3200 NCA 1985 11000 7400 6500 8000 3200 NCA 1990 11000 7400 6500 8000 3200 9900	25,000	1980	5700							
37,500   1990   5700   4000   3300   4000   1650   5000   5700   4000   3300   4000   1650   5000   5000   1980   8500   5700   4900   6000   2400   NCA   1990   8500   5700   4900   6000   2400   NCA   1990   8500   5700   4900   6000   2400   7400   7400   2000   8500   5700   4900   6000   2400   7400   7400   1980   11000   7400   NCA   8000   3200   NCA   1985   11000   7400   6500   8000   3200   NCA   1990   11000   7400   6500   8000   3200   9900   3200   9000   90			5700							
37,500       2000			5700	4000		4000				
37,500     1980     8500     5700     NCA     6000     2400     NCA       1985     8500     5700     4900     6000     2400     NCA       1990     8500     5700     4900     6000     2400     7400       2000     8500     5700     4900     6000     2400     7400       1980     11000     7400     NCA     8000     3200     NCA       1985     11000     7400     6500     8000     3200     NCA       1990     11000     7400     6500     8000     3200     9900				4000		4000				
50,000     1985     8500     5700     4900     6000     2400     NCA       1990     8500     5700     4900     6000     2400     7400       2000     8500     5700     4900     6000     2400     7400       1980     11000     7400     NCA     8000     3200     NCA       1985     11000     7400     6500     8000     3200     NCA       1990     11000     7400     6500     8000     3200     9900	37,500			5700	NCA	6000				
50,000     8500     5700     4900     6000     2400     7400       50,000     1980     11000     7400     NCA     8000     3200     NCA       1985     11000     7400     6500     8000     3200     NCA       1990     11000     7400     6500     8000     3200     NCA       2000     11000     7400     6500     8000     3200     9900					4900		2400			
50,000 1980 11000 7400 NCA 8000 3200 NCA 1985 11000 7400 6500 8000 3200 NCA 1990 11000 7400 6500 8000 3200 9900					4900		2400			
1985 11000 7400 6500 8000 3200 NCA 1990 11000 7400 6500 8000 3200 9900	50 000				4900		2400	7400		
1990 11000 7400 6500 8000 3200 9900	20,000									
2000										
\				l l						
250 000 1000 56000 01000	250,000			7400	6500	8000	3200	9900		
1005 E6000 NCA	230,000									
1000 RGA										
1990 56000 31000 33000 40000 14000 50000 2000 56000 31000 33000 40000 14000 50000										

PARAMETER: AREA				UNITS: Square Feet				
Thermal Energy Capacity, 1038tu	. ]	СаС1-6 н20	Na <sub>2</sub> SO <sub>4</sub> · 10 H <sub>2</sub> 0	NaS <sub>2</sub> 03·5 H <sub>2</sub> 0	Olivine Ceramic	Magnisite Ceramic	Form-Stable Polyethylene	
50		1.9	2.8	NCA	2.4	0.9	NCA	
1	1985 1990	1.9	2.8	1.1	2.4	0.9	NCA	
	2000	1.9 1.9	2.8	1.1	2.4	0.9	1.3	
100	1980	3.9	2.8	1.1	2.4	0.9	1.3	
100	1985	3.9	5.6 5.6	NCA	4.8	1.9	NCA	
	1990	3.9	5.6	2.1 2.1	4.8	1.9	NCA	
	2000	3.9	5.6	2.1	4.8	1.9	2.5	
250	1980	9.6	14	NCA	4.8	1.9 4.7	2.5	
	1985	9.6	14	5.3	12 12	4.7	NCA	
	1990	9.6	14	5.3	12	4.7	NCA 6.4	
	2000	9.6	14	5.3	12	4.7	6.4	
500	1980	19	28	NCA	24	9.4	NCA	
I	1985	19	28	11	24	9.4	NCA	
	1990	19	28	l ii	24	9.4	13	
	2000	19	28	11	24	9.4	13	
1000	1980	39	56	NCA	48	19	NCA	
	1985	39	56	21	48	19	NCA	
•	1990	39	56	21	48	19	25	
	2000	39	56	21	48	19	25	
5000	1980	190	280	NCA	240	94	NCA	
	1985	190	280	110	240	94	NCA	
	1990	190	280	110	240	94	130	
10500	2000	190	280	110	240	94	130	
12500	1980	480	700	NCA	600	230	NCA	
	1985	480	700	260	600	230	NCA	
	1990 2000	480 480	700	260	600	230	320	
25,000	1980	960	700 1400	260	600	230	320	
13,000	1985	960	1400	NCA	1200	470	NCA	
	1990	960	1400	530	1200	470 470	NCA	
	2000	960	1400	530	1200	470	640	
37,500	1980	1400	2100	530 NCA	1200	700	640	
	1985	1400	2100	790	1800 1800	700	NCA NCA	
	1990	1400	2100	790	1800	700	950	
	2000	1400	2100	790	1800	700	950 950	
50,000	1980	1900	2800	NCA	2400	940	NCA	
	1985	1900	2800	1100	2400	940	NCA	
	1990	1900	2800	1100	2400	940	1300	
200 000	2000	1900	2800	1100	2400	940	1300	
250,000	1980	9600	14000	NCA	12000	4700	NCA	
	1985	9600	14000	5300	12000	4700	NCA	
	1990	9600	14000	5300	12000	4700	6400	
	2000	9600	14000	5300	12000	4700	6400	

PARAMETER: WEIGHT			UNITS: POUNDS				
Thermal Energy Capacity, 103Btu	Year	СаС1·6 Н <sub>2</sub> 0	Na <sub>2</sub> SO <sub>4</sub> ·10 H <sub>2</sub> O	NaS <sub>2</sub> 03·5 H <sub>2</sub> 0	Olivine Ceramic	Magnisite Ceramic	Form-Stable Polyethylene
50	1980	870	840	NCA	230	280	NCA
	1985	870	840	580	230	280	NCA
	1990	870	840	580	230	280	610
	2000	870	840	580	230	280	610
100	1980	1600	1600	NCA	450	560	NCA
	1985	1600	1600	1200	450	560	NCA
	1990	1600	1600	1200	450	560	1200
	2000	1600	1600	1200	450	560	1200
250	1980	3400	3600	NCA	1100	1400	NCA
	1985	3400	3600	2900	1100	1400	NCA
	1990	3400	3600	2900	1100	1400	3000
	2000	3400	3600	2900	1100	1400	3000
500	1980	6100	6700	NCA	2300	2700	NCA
	1985	6100	6700 6700	5800	2300	2700	NCA
	1990	6100	6700	5800	2300	2700	6100
1000	2000	6100 11000	6700 12000	5800 NCA	2300 4500	2700	6100
1000	1980	11000	12000	12000	4500 4500	5400 5400	NCA
<u> </u>	1985 1990	11000	12000	12000	4500	5400	NCA 12000
	2000	11000	12000	12000	4500	5400	12000
5000	1980	39000	52000	NCA	23000	27000	NCA
5000	1985	39000	52000	58000	23000	27000	NCA
1	1990	39000	52000	58000	23000	27000	61000
1	2000	39000	52000	58000	23000	27000	61000
12500	1980	77000	120000	NCA	57000	67000	NCA
	1985	77000	120000	140000	57000	67000	NCA
1	1990	77000	120000	140000	57000	67000	150000
	2000	77000	120000	140000	57000	67000	150000
25,000	1980	130000	130000	NCA	110000	130000	NCA
	1985	130000	130000	290000	110000	130000	NCA
	1990	130000	130000	290000	110000	130000	300000
	2000	130000	130000	290000	110000	130000	300000
37,500	1980	160000	300000	NCA	170000	190000	NCA NCA
	1985	160000	300000	430000	170000	190000	450000
	1990	160000	300000	430000	170000	190000	450000
	2000	160000	300000	430000	170000	190000	NCA
50,000	1980	200000 200000	390000	NCA 580000	230000	260000	NCA
1	1985	200000	390000 390000	580000	230000	260000 260000	610000
	1990 2000	200000	390000	580000	230000	260000	610000
250,000	1980	400000	1600000	NCA	1100000	1200000	NCA
230,000	1985	400000	1600000	2900000	1100000	1200000	NCA
1	1990	400000	1600000	2900000	1100000	1200000	3000000
1	2000	400000	1600000	2900000	100000	1200000	3000000

PARAMETER: RAW MATERIALS				UNITS: Ordinal; 1-5				
Thermal Energy Capacity, 10 <sup>3</sup> Btu	Year	CaC1.6 H <sub>2</sub> 0	Na2 SO4 . 10 H20	NaS <sub>2</sub> 03.5 H <sub>2</sub> 0	Olivine Ceramic	Magnisite Ceramic	Form-Stable Polyethylene	
100	1980 1985 1990 2000 1980 1985	555555555555555555555555555555555555555	55555555555555555555555555555555	NCA 3 3 3 NCA 3	3333333333333333333333333333333333333	5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	NCA NCA 3 3 NCA NCA	
250	1990 2000 1980 1985 1990 2000	5 5 5 5 5	5 5 5 5 5	3 3 3 NCA 3 3	3 3 3 3 3	5 5 5 5	NCA 3 3 NCA NCA 3 3	
500	1980 1985 1990 2000	5 5 5	5 5 5	NCA 3 3	3 3 3 3	5 5 5 5	NCA NCA 3 3	
1000 5000	1980 1985 1990 2000 1980	5 5 5 5	5 5 5 5	NCA 3 3 3 NCA	3 3 3 3	5 5 5 5	NCA NCA 3 3 NCA	
12500	1985 1990 2000 1980 1985	5 5 5 5	5 5 5 5	3 3 3 NCA	3 3 3 3	5 5 5 5 5	NCA 3 3 NCA NCA	
25,000	1990 2000 1980 1985 1990			3 3 NCA 3 3			3 3 NCA NCA	
37,500	2000 1980 1985 1990 2000	5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	3 NCA 3 3	3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3	5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	3 3 NCA NCA 3 3	
50,000 250,000	1980 1985 1990 2000	5 5 5 5	5 5 5 5	NCA 3 3 3 NCA	3 3 3 3	5 5 5 5	NCA NCA 3 3	
230,000	1985 1985 1990 2000	5 5 5	5 5 5	3 3 3	3 3 3	5 5 5	NCA NCA 3	

PARAMETER: OPERATIONAL CONSTRAINTS UNITS: Ordinal; 1-5							
Thermal Energy Capacity, 103Btu	1	CaCl·6 H <sub>2</sub> 0	Na2 SO4 .10 H20	NaS203.5 H20	Olivine Ceramic	Magnisite Ceramic	Form-Stable Polyethylene
100 250 500	1980 1985 1990 2000 1980 1985 1990 2000 1980 1980 1985	3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3	3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3	NCA 4 4 NCA 4 4 NCA 4 4 NCA 4	3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3	3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3	NCA NCA 3 NCA NCA 3 NCA
1000 5000	1990 2000 1980 1985 1990 2000 1980	3 3 3 3 3	3 3 3 3 3	4 4 NCA 4 4 4 NCA	3 3 3 3 3	3 3 3 3 3	NCA 3 NCA NCA 3 NCA NCA
12500	1985 1990 2000 1980 1985 1990 2000	3 3 3 3 3 3	3 3 3 3 3 3	4 4 4 NCA 4	3 3 3 3 3	3 3 3 3 3	NCA NCA 3 3 NCA NCA 3
25,000 37,500	1980 1985 1990 2000 1980 1985 1990	3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3	333333333333333333333333333333333333333	NCA 4 4 4 NCA 4		3333333333333333333	NCA NCA 3 3 NCA
50,000	2000 1980 1985 1990 2000	3 3 3 3	3 3 3 3 3	4 4 NCA 4 4	3 3 3 3 3	3 3 3 3	3 3 NCA NCA 3 3
250,000	1980 1985 1990 2000	3 3 3 3	3 3 3 3	NCA 4 4 4	3 3 3 3	3 3 3 3	NCA NCA 3 3

AND CONTROL SHARES AND THE SALES OF THE SALES

PAR	AMETI	ER: RELI	ABILITY	UNITS: Ordinal; 1-5				
Thermal Fraction	Capacity, 103Btu	Year	CaCl·6 H <sub>2</sub> O	Na <sub>2</sub> SO <sub>4</sub> ·10 H <sub>2</sub> 0	NaS <sub>2</sub> 03.5 H <sub>2</sub> 0	Olivine Ceramic	Magnisite Ceramic	Form-Stable Polyethylene
	50	1980	4	4	NCA	4	4	NCA
		1985	4	4	3 3 3	4	4	NCA
I		1990	4	4	3	4	4	4
1	LOO	2000 1980	4	4		4	4	4
1	LUU	1985	4	4	NCA	4	4	NCA
		1990	4	4	3	4	4	NCA
		2000	4	4	3 3 3	4	4	4
2	250	1980	4	4	NCA	4	4	4
		1985	4	4		4	4	NCA
ł		1990	4	4	3 3 3	4	4	NCA
		2000	4	4	3	4	4	4
5	00	1980	4	4	NCA	4	4	NCA
		1985	4	4		4	4	NCA NCA
		1990	4	4	3 3 3	4	4	4
		2000	4 4 4	4	3	4	4	4
10	00	1980	4	4	NCA	4	4	NCA
	1	1985	4	4		4	4	NCA
		1990	4	4	3 3 3	4	4	4
1		2000	4	4	3	4	4	4
50	00	1980	4	4	NCA	4	4	NCA
		1985	4	4		4	4	NCA
1		1990	4	4	3 3 3	4	4	4
	•	2000	4	4	3	4	4	4
125	00	1980	4	4	NCA	4	4	NCA
		1985	<b>L</b> t	4	3 3 3	4	4	NCA
		1990	4	4	3	4	4	4
25 0	^	2000	4	4		4	4	4
25,0	<b>5</b> 0	1980 1985	4	4	NCA 2	4	4	NCA
	l	1990	4	4	NCA 3 3 3	4	4	NCA
		2000	4	4	3	4	4	4
37,5	<sub>00</sub> 1	1980	4	4	NCA	4	4	4 NCA
<u> </u>		1985	4	4	3		4	NCA NCA
		1990	4	4	3		4	4
		2000	4	4	3	7	4	4
50,0	00	1980	4	4	3 3 3 NCA	4 4 4	4 4 4	NCA
		1985	4	4	3	4	4	NCA
1	ł	1990	4	4	3	4	4	4
		2000	4	4	3	4	4	4
250,0	00	1980	4	4	NCA	4	4	NCA
		1985	4	4		4	4	NCA
1	ł	1990	4	4	3 3 3	4	4	4
		2000	4	4	3	4	4	4

2000

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